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Tactics, Techniques, and Procedures for

THE TARGETING PROCESS

HEADQUARTERS
DEPARTMENT OF THE ARMY
UNITED STATES MARINE CORPS

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DEPARTMENT OF THE ARMY
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FOREWARD

This publication may be used by the US Army and US Marine Corps forces during training, exercises, and contingency operations.

Paul K. Van Riper

General, USA
Commanding
Training and Doctrine Command

Lieutenant General, USMC
Commanding General
Marine Corps Combat Development Command

PREFACE

Targeting is part of the tactical decision-making process used to focus the battlefield operating systems (BOSs) to achieve the commander's intent. The methodology used to translate the commander's intent into a plan is **decide, detect, deliver, and assess**. The functions associated with this methodology help the commander to decide what to attack with his fire support system, how to acquire those targets, and when those targets are found, how to attack them in a way that disrupts, delays, or limits the enemy's ability to achieve his objectives.

Targeting is a command responsibility that requires participation of key members of both the coordinating and special staffs. The commander establishes the environment that determines the quality of the targeting effort, and targeting often determines the commander's success or failure.

The targeting process is challenging. Locating, identifying, classifying, tracking, and attacking targets and assessing battle damage with limited sensor assets and attack systems is difficult. It becomes even more difficult with deep, fast-moving targets. At division and higher echelons, more decision makers and acquisition, surveillance, and attack systems are involved, making the process more complex. This is particularly true when joint and combined assets are included. Competition for assets is intense. Many intelligence systems are capable of situation development, target acquisition (TA), and battle damage assessment (BDA) but may not be able to do them at the same time. Detailed guidance, thorough planning, and disciplined execution prevent unnecessary redundancy and make the most of available combat power.

Successful targeting requires that commanders and their staffs possess--

- An understanding of the functions associated with the targeting process.
- The knowledge of the capabilities and limitations of organic and supporting TA and attack systems.
- The ability to synchronize BOS horizontally within their own command posts and vertically with higher and lower echelons.

Operation Desert Storm confirmed that the decide, detect, deliver, and assess methodology works. The success of the targeting effort is evident in the incredible destruction wrought by the fire support system and the relatively few American and allied casualties. This same methodology has also been effective during operations other than war as in Somalia and Haiti.

The focus of this publication is on the targeting process from task force to corps level. The process is described without tying it to specific hardware that will eventually become dated. Targeting methodology is not new or revolutionary. It consists of time-tested techniques organized in a systematic framework. Emerging joint targeting doctrinal concepts and other Services' targeting considerations are also presented.

This publication is fully compatible with Army warfighting doctrine and is consistent with current joint and combined arms doctrine. It assumes the user has a fundamental understanding of the principles of fire support set forth in field manual (FMs) 100-5 and FM 6-20, of intelligence and electronic warfare (IEW) operations set forth in FM 34-1, and of intelligence preparation of the battlefield set forth in FM 34-130.

During its development, FM 6-20-10 has undergone several draft revisions. Numerous individuals, units, and US Army Training and Doctrine Command (TRADOC) schools have helped make it an authoritative and comprehensive targeting reference. Those listed below contributed significantly and provided comprehensive rewrites of the developed draft. The effort and professionalism of these soldiers, warrant officers, and officers resulted in this final product. It reflects the consensus of the field on targeting tactics, techniques, and procedures. The following units contributed significantly to the development of this field manual:

* 101st Airborne Division (AASLT), Fort Campbell, Kentucky.

* 82d Airborne Division, Fort Bragg, North Carolina.

* 10th Mountian Division (Light), Fort Drum, New York.

* 4th Infantry Division, Fort Carson, Colorado.

* 24th Infantry Division, Fort Stewart, Georgia.

* 25th Infantry Division, Schoefield Barracks, Hawaii.

* V Corps Artillery, Heidelberg, Germany.

* XVIII Airborne Corps, Fort Bragg, North Carolina.

* U.S. Army Intelligence Center and School, Fort Huachuca.

* U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

* U.S. Army Infantry School, Fort Benning, Georgia.

* U.S. Army Command and General Staff College, Fort Leavenworth, Kansas.

* Marine Corps Combat Development Command, Quantico, Virginia.

* Air Combat Command, Langley, Virginia.

* Air, Land, and Sea Application Center, Langley, Virginia.

The U.S. Army Field Artillery School (USAFAS) owes them and many others a great debt of gratitude for the professionalism they displayed in their contributions to this important manual.

The proponent of this publication is HQ TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to:

Commandant
US Army Field Artillery School
ATTN: ATSF-TW
Fort Sill, OK 73503-5600

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1
PRINCIPLES AND PHILOSOPHY

According to Joint Publication (Pub) 1-02, a target is a geographical area, complex, or installation planned for capture or destruction by military forces. Targets also include the wide array of mobile and stationary forces, equipment, capabilities, and functions that an enemy commander can use to conduct operations. Targeting is the process of selecting targets and matching the appropriate response to them on the basis of operational requirements and capabilities. The emphasis of targeting is on identifying resources (targets) the enemy can least afford to lose or that provide him with the greatest advantage, then further identifying the subset of those targets which must be acquired and attacked to achieve friendly success. Denying these resources to the enemy makes him vulnerable to friendly battle plans. These resources constitute critical enemy vulnerabilities. Successful targeting enables the commander to synchronize intelligence, maneuver, fire support systems, and special operations forces by attacking the right target with the best system and munitions at the right time.

Targeting is a complex and multidisciplined effort that requires coordinated interaction among many groups. These groups working together are referred to as the targeting team and include, but are not limited to, the fire support, intelligence, operations, and plans cells. Representatives from these cells are essential to a comprehensive targeting process. Other members of the staff may help them in the planning and execution phases of targeting. Close coordination among all cells is crucial for a successful targeting effort. Sensors and collection capabilities under the control of external agencies must be closely coordinated for efficient and quick reporting of fleeting or dangerous targets. Also, the vulnerabilities of different types of targets must be attacked by the appropriate means and munitions.

This manual describes the targeting process used by United States (US) Army units operating as part of a joint force. It is descriptive and not prescriptive in nature and has applicability in any theater of operation. It offers considerations for commanders and staffs in meeting the targeting challenge, yet it is flexible enough to adapt to the most dynamic situation.

DOCTRINAL BASIS

The Army will not operate alone in the uncertain, ambiguous security environment described in Joint Pub 3-O and FM 100-5. Operations involving Army forces will always be joint. The overarching operational concept is that joint force commanders (JFCS) synchronize the action of air, land, sea space, and special operations forces (SOFs) to achieve strategic and operational objectives through integrated, joint campaigns and major operations. JFCs seek to win decisively and quickly and with minimum casualties and minimal collateral damage. Application of lethal and nonlethal fires is essential in defeating the enemy's ability and will to fight. JFCS use a variety of means to divert limit disrupt, delay, damage, or destroy the enemy's air, surface, and subsurface military potential throughout the depth of the battlefield. The specific criteria of the above terms must be established by the commander and well understood by targeting team members. Conflicts will be dominated by high-technology equipment and weapons and fought over extended distances by highly integrated, joint and combined task forces (TFs). The characteristics of the future battlefield will challenge the joint force and service component commanders' ability to efficiently and effectively employ limited numbers of sophisticated acquisition and attack systems against a diverse target array.

TARGETING OBJECTIVES

The objectives of targeting must be articulated simply yet authoritatively. The objectives must be easily understood across the combined and joint environment of future operations. Targeting objectives must focus assets on enemy capabilities that could interfere with the achievement of friendly objectives. Originally, targeting objectives were expressed in terms of the fire support mission area analysis (FSMAA) responses of limit, disrupt, and delay. These terms are still appropriate. Interdiction objectives also express targeting objectives such as destroy, divert, disrupt, and delay. Interdiction objective definitions currently exist in Joint Pub 1-02 and Joint Pub 3-03. The figure on the next page paraphrases the definition. and offers a comparison between the two publications. Terms such as *limit, disrupt, delay, divert, destroy, and damage* are used to describe the effects of attack on enemy capabilities. They should not be confused with the terms *harass, suppress, neutralize,* or *destroy* (discussed in Chapter 2). These terms are used as attack criteria to determine the degree of damage or duration of effects on a specific target.

The terms are not mutually exclusive. Actions associated with one objective may also support other objectives.

Limit enemy capabilities applies to reducing the options or courses of action 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 interdiction to limit enemy use of fire support capability.

To limit capabilities implies we also *disrupt* enemy plans by precluding effective interaction or the cohesion of enemy combat and combat support systems. In regard to Air Force interdiction doctrine, disrupt forces the enemy into less efficient and more vulnerable dispositions.

Delay alters 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. In interdiction doctrine, delay results from disrupting, diverting, or destroying enemy capabilities or targets.

Divert is an interdiction objective which addresses the commander's desire to tie up critical enemy resources. Attack of certain interdiction targets may result in the enemy commander's diverting capabilities or assets from one area or activity to another. Divert indirectly reduces the capability of the enemy commander to continue his plans.

Destroy as an interdiction objective calls for ruining the structure, organic existence, or condition of an enemy target that is essential to an enemy capability. Describing destruction as an 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.

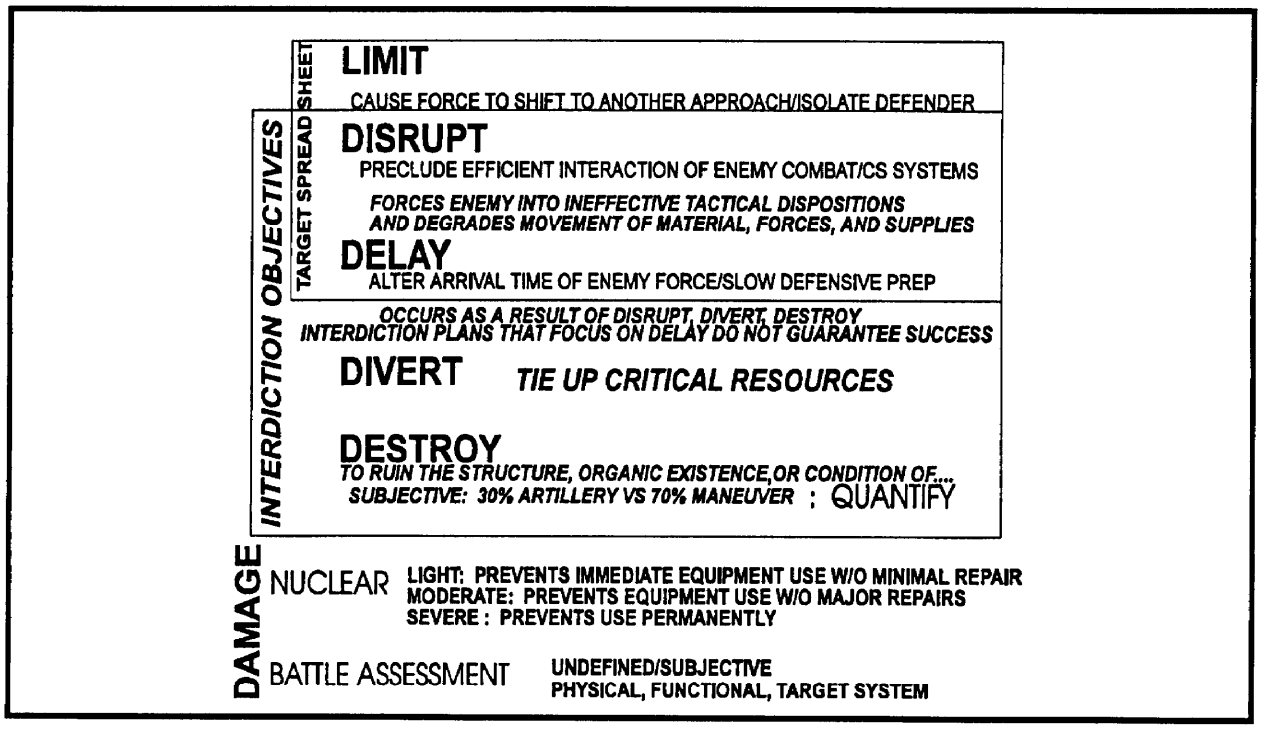
Damage can be used to reflect a subjective or objective assessment of battle damage or to describe nuclear targeting objectives (light) moderate, or severe). Light, moderate, or severe damage are terms associated with nuclear target analysis commander's criteria for desired affect on the enemy.

Ultimately, the articulation of targeting objectives in an era of limited manpower and resources will require a command analysis, as much for what the targeting objective does not mean as for what it does.

TARGETING METHODOLOGY

Targeting methodology is time-tested and is based on the **decide, detect, deliver,** and **assess** functions performed by the commander and staff in planning and executing targeting. Details of each function are presented in Chapter 2. This methodology organizes the efforts of the commander and staff to accomplish key targeting requirements.

TARGETING OBJECTIVES



The targeting process supports thecommander's decisions. It helps the targeting team decide which targets must be acquired and attacked. It helps in the decision of which attack option to use to engage the targets. Options can be either lethal or nonlethal and/or organic or supporting. For example, they can be maneuver, electronic attack (EA), psychological operations (PSYOP), attack helicopters, surface-to-surface fires, or a combination of these. In addition, the process helps in the decision of who will engage the target at the prescribed time. It also helps targeting teams determine requirements for combat assessment to assess targeting and attack effectiveness.

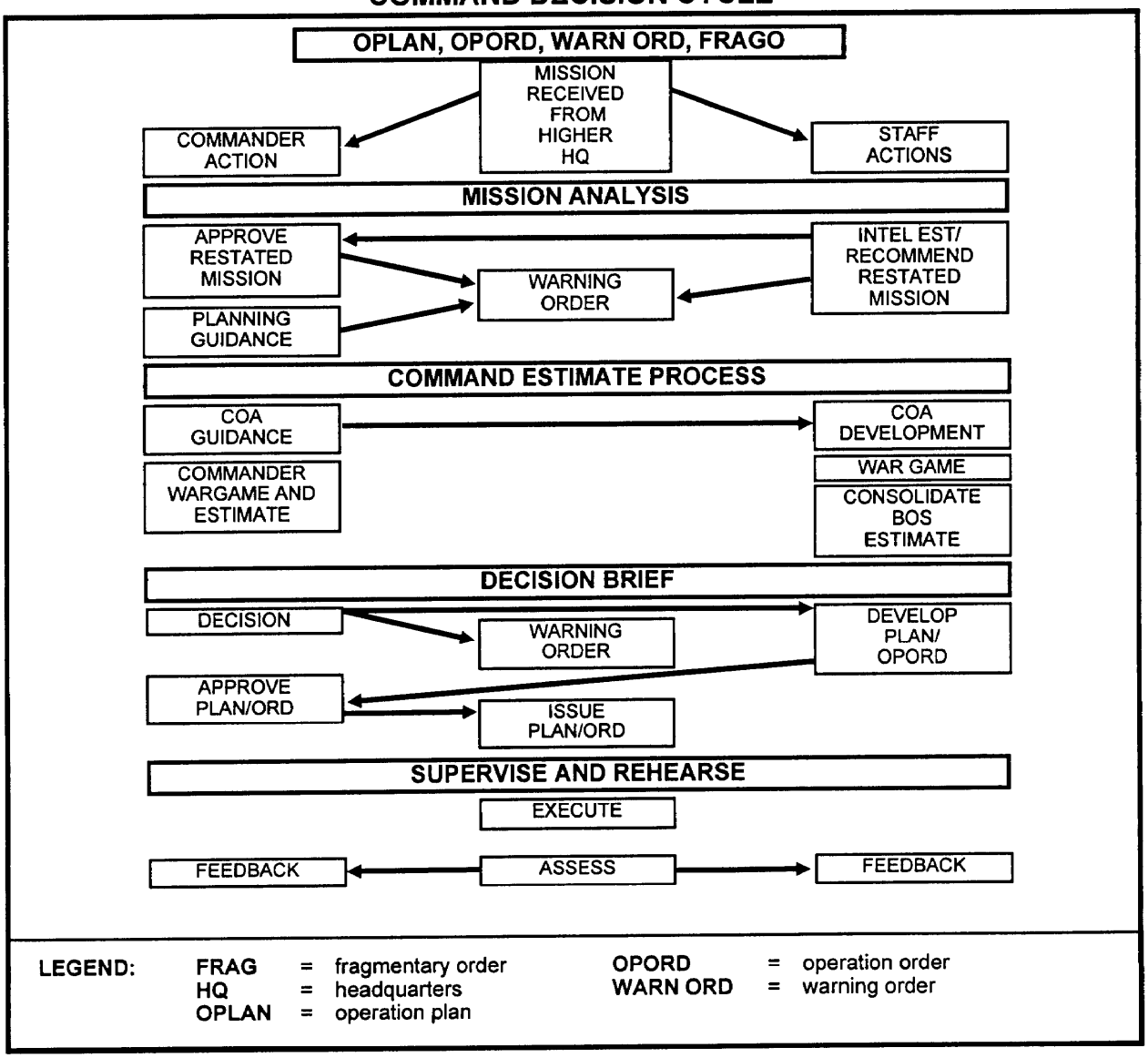
TARGETING AND PLANNING

Targeting is an integral part of the planning process, also called the command decision cycle, described in FM 101-5.

Command Decision Cycle

The command decision cycle depicted in the next two figures begins with receipt of the mission and mission analysis by the commander. The commander is responsible for mission analysis but may have his staff conduct a detailed mission analysis for his approval. The mission analysis considers intelligence preparation of the battlefield (IPB), the enemy situation, and potential enemy courses of action (COA).

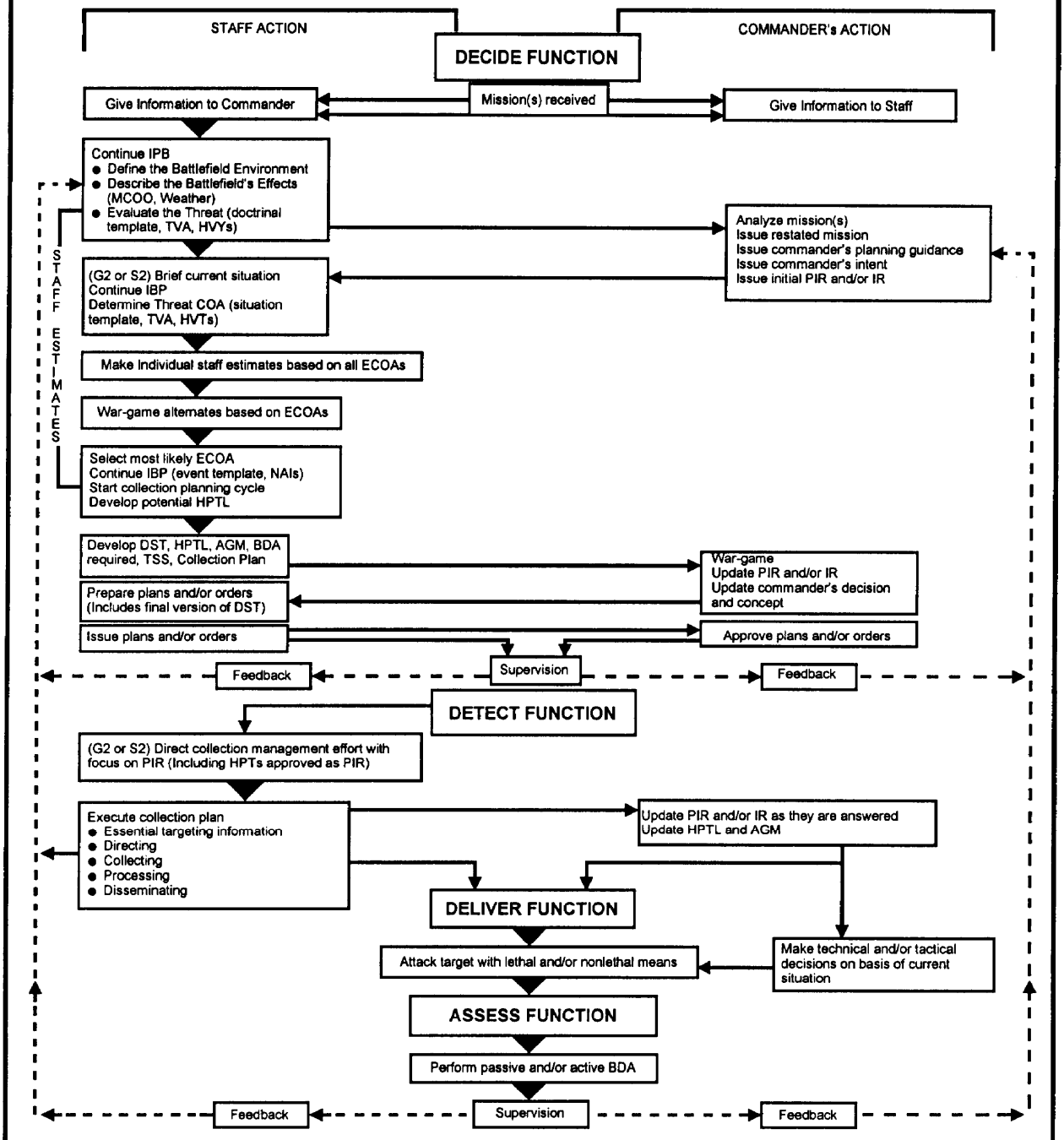
COMMAND DECISION CYCLE



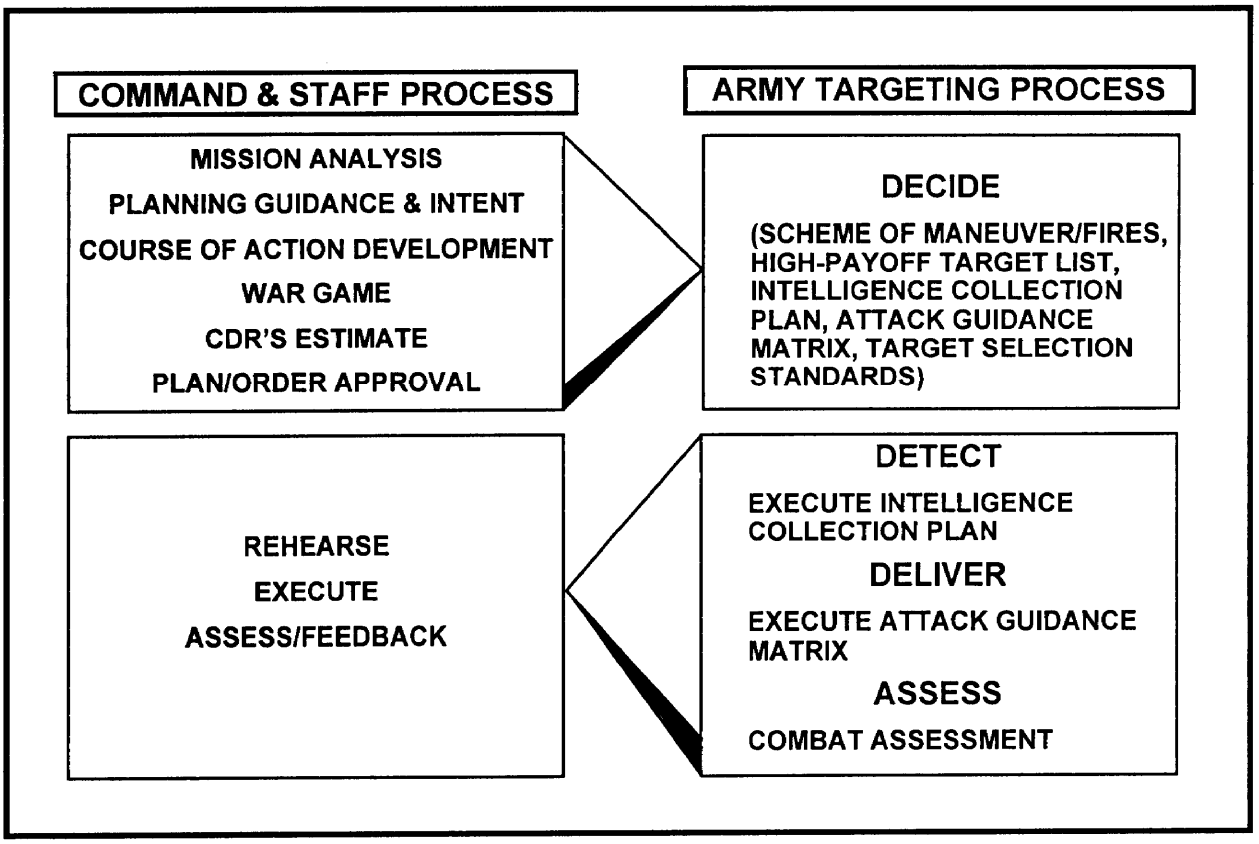
LEGEND:

FRAG	=	fragmentary order	OPORD	=	operation order
HQ	=	headquarters	WARN ORD	=	warning order
OPLAN	=	operation plan			

THE TARGETING PROCESS



LEGEND:	**AGM**	=	attack guidance matrix	**IR**	=	information requirements
	DST	=	decision support template	**MCOO**	=	modified combined obstacles overlay
	ECOA	=	enemy course of action	**NAI**	=	named area of interest
	HPT	=	high-payoff target	**PIR**	=	priority intelligence requirements
	HPTL	=	high-payoff target list	**TSS**	=	target selection standards
	HVT	=	high-value target	**TVA**	=	target value analysis



The commander provides his initial planning guidance and intent for further development of possible COA. A warning order is sent to subordinate units to allow them to begin planning, providing them as much lead time as possible.

The plans cell develops potential friendly COA. These are usually checked by the commander or chief of staff to ensure they comply with the commander's initial guidance and intent and meet considerations for COA development.

Once approved for further development, friendly COA are war-gamed against the most likely and/or most threatening enemy COA to determine their suitability, acceptability, and feasibility. The results are normally briefed to the commander in a decision briefing. Following a decision by the commander, adjustments are made, if necessary, to the selected COA and orders preparation begins. A warning order is sent to subordinate units which provides them as much information as possible to expedite their planning.

The OPORD is completed and approved by the commander and then issued to subordinates. Subordinate units continue their planning process, modifying supporting plans as necessary. Rehearsals should be conducted before execution. The order is executed, and the commander and staff assess activities and results. The assessment provides them with feedback for modifying current plans or identifying new missions.

Targeting and the Command Decision Cycle

The decide, detect, deliver, and assess targeting methodology depicted in the figure above is an integral part of the command decision cycle from receipt of the mission through OPORD execution. Each part of the methodology occurs at the same time and sequentially. As decisions are made in planning future operations, current operations staff elements execute detection and attack of targets on the basis of prior decisions. Staff elements are also involved in detecting and attacking targets on the basis of prior decisions.

Decide

The decide function is the most important and requires close interaction between the commander and the intelligence, plans, operations, and fire support cells. The staffs must clearly understand the following:

- Unit mission.
- Commander's intent and concept of the operation (scheme of maneuver and scheme of fires).
- Commander's initial planning guidance.

With this information, the staff officers can prepare their respective estimates. From the standpoint of targeting, the fire support, intelligence, and operations estimates are interrelated and must be closely coordinated among the cells. Key staff products include the intelligence officer's IPB, target value analysis, and the intelligence estimate. The oerations officer, intelligence officer, and fire support coordinator (FSCOORD) participate in war-gaming and develop the products of the decide function, The decide function gives a clear picture of the priorities that apply to the following:

- Tasking of TA assets.
- Information processing.
- Selection of an attack means.
- Requirement for combat assessment.

The resulting OPORD addresses key points of the DST. The order contains commander's critical information requirements (CCIRs) to include the following:

- Priority intelligence requirements.
- Information requirements.
- Intelligence collection plan.
- Target acquision taskings.
- High-payoff target list.
- Attack guidance matrix.
- Target selection standards.
- Any requirements for BDA.

Detect

The detect targeting function is conducted during the execution of the OPORD. During detection, the collection manager supervises the execution of the collection plan, focusing on the commander's PIRs. TA assets gather information and report their findings back to their controlling headquarters, which in turn pass pertinent information to the tasking agency. Some collection assets provide actual targets, while other assets must have their information processed to produce valid targets. Not all of the information reported will benefit the targeting effort, but it may be valuable to the development of the overall situation. The target priorities developed in the decide function 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). Critical targets that we cannot or choose 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. Tracking suspected targets 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 targets are developed, appropriate attack systems are tasked in accordance with the attack guidance and location requirements of the system.

Deliver

The main objective of this function is the attack of targets in accordance with the attack guidance. The tactical solution (the selection of an attack system or a combination of systems) leads to a technical solution for the selected systems. The technical solution includes the following:

- Specific attack unit.
- Type of ordnance.
- Time of attack.
- Coordinating instructions.

Assess

The commander and staff assess the results of mission execution. If combat assessment reveals that the commander's guidance has not been met, the detect and deliver functions of the targeting process must continue to focus on the targets involved. This feedback may result in changes to original decisions made during the decide function.

These changes must be provided to subordinate units as appropriate, because they impact on continued execution of the plan.

The targeting process is continuous and crucial to the synchronization of combat power. The identification and subsequent development of targets, the attack of the targets, and the combat assessment of the attacks give the commander vital feedback on the battle.

JOINT AND SERVICE TARGETING METHODOLOGY

Each service has established unique doctrine and tactics, techniques, and procedures for targeting. Several emerging joint doctrinal publications also address joint targeting procedures. Where the habitual integration of resources from one or more services support the targeting requirements of another service, multiservice arrangements have been developed. Chapter 3 discusses current and emerging joint targeting.

Targeting at all levels of the joint force is a complex and coordinated process. Existing service procedures for the acquisition, selection, and attack of targets have four things in common:

- Deciding in advance what is to be targeted.
- Locating the target.
- Attacking the target.
- Assessing the results of the attack.

This common approach to targeting mirrors the decide, detect, deliver, and assess targeting functions presented in this manual. The targeting process is accomplished by the components applying service-developed tactics, techniques, and procedures (TTP) within a joint framework established by the JFC. The organizational challenge for the JFC is to meld existing service component architecture into an effective joint targeting team for operational level targets without degrading their primary mission of targeting support to their respective components.

From the JFC's perspective, a target is selected for strategic and/or operational reasons. A decision is subsequently made whether to attack the target and, if it is to be attacked, which system will attack it. The targets selected or nominated in this process must support the JFC's campaign plan and contribute to the success of present and future major operations. The JFC relies on his tactical level commanders to effectively orchestrate the targeting process. Control measures, such as a fire support coordination line (FSCL), must be repositioned as needed to take fill advantage of all assets available to the joint force commander. The JFC best influences the outcome of future tactical battles by setting the conditions for those battles and allocating resources to the service components.

JOINT AIR-GROUND OPERATIONS RELATIONSHIPS

Capabilities of the ground component commander and the air component commander overlap. Both have deep intelligence collection assets and attack system capabilities, and the capabilities of the systems of one service complement the capabilities of the other. Therefore, both air and ground systems must be synchronized to gain the greatest efficiency and technological advantage. This requires air and ground component commanders and their staffs to share the effort in acquiring and attacking targets throughout the battlefield.

Staffs at all echelons must understand the coordination requirements and measures to acquire and attack targets safely and effciently in a joint warfighting environment. The battlefield is five-dimensional. The five dimensions are width, length, altitude or depth, time, and electromagnetic spectrum. Current coordination and control measures permit the complementary, simultaneous attack of targets by air and ground systems.

PERSONNEL AND RESPONSIBILITIES

Key targeting team members are members of the commander's coordinating and special staffs. They perform the targeting process as part of their normal responsibilities within the military decision-making process. From their initial estimates and analysis to their supervision and execution of the plan, they continue to revise and update their estimates. The relative formality of the decision-making process depends on time available and the level of the command.

The commander is responsible for the targeting effort. The intelligence, operations, and fire support officers form the core of the targeting team at each level. Normally, the chief of staff at corps and division and the executive officer (XO) at brigade and battalion oversee the routine activity and coordination of the targeting process.

Targeting is enhanced by the commander organizing his primary operations, intelligence, and fire support advisors into an informal targeting team. Typically, the team is composed of representatives from the following:

- G2 or S2 section.
- G3 or S3 section.
- Fire support element (FSE).

As required other representatives within the tactical operations center (TOC) may also be members of the targeting team. Examples include the following:

- Staff weather officer (SWO).
- Aviation officer.
- Chemical officer.
- Electronic warfare staff officer (EWSO).
- Engineer officer.
- Field artillery intelligence officer (FAIO).
- Air liaison officer.
- Air defense officer.
- Naval gunfire liaison officer (NGLO).
- Civil affairs officer.
- Staff judge advocate (SJA).
- Liaison officers (LOS) of major subordinate commanders.

The targeting team has three primary functions in assisting the commander:

- Helps synchronize operations.
- Recommends targets to acquire and attack. The team also recommends the most efficient and available assets to detect and attack these targets.
- Identifies combat assessment (CA) requirements. CA can provide crucial and timely battlefield information to allow analysis of the success of the plan or to initiate revision of the plan. See Chapter 2 for more details on CA.

The targeting effort is continuous at all levels of command. Continuity is achieved through parallel planning by targeting teams from corps through battalion TF. Targeting is not just a wartime function. This process must be exercised before battle if it is to operate effectively. The members of the targeting team must be familiar with their roles and the roles of the other team members. That familiarity can only be gained through staff training.

The following chapters describe the targeting functions required to successfully plan and engage targets by use of the decide, detect, deliver, and assess methodology. As mentioned earlier, the degree of formality with which the targeting process is pursued depends on the level of command and the time available.

CHAPTER 2
TARGETING METHODOLOGY

The modern battlefield presents many targets of different types and vulnerabilities exceeding the number of resources available to acquire and attack them. The commander must determine which targets are most important to the enemy and, of those targets, which ones he must acquire and attack to accomplish his mission. The purpose of this chapter is to explain the decide, detect, detect, and assess targeting methodology, which is designed to assist the commander in the decision-making process.

GENERAL

Targeting is a combination of intelligence functions, planning battle command, *weaponeering*, operational execution, and combat assessment. The decide, detect, deliver, and assess methodology facilitates the attack of the right target with the right asset at the right time.

A very important part of the targeting process is the identification of potential fratricide situations and the necessary coordination measures to positively manage and control the attack of targets. These measures are incorporated in the **coordinating instructions** and appropriate annexes of the OPLAN and/or OPORD.

The targeting process provides an effective method for matching the friendly force capabilities against enemy targets. Targeting is a dynamic process; it must keep up with the changing face of the battlefield. The tools and products described in this chapter must be continually updated on the basis of combat assessment and situation development.

DECIDE

The decide function, as the first step in the targeting process, provides the overall focus and sets priorities for intelligence collection and attack planning. Targeting priorities must be addressed for each phase or critical event of an operation. The decisions made are reflected in visual products. The products areas follows:

- The high-payoff target list (HPTL) is a prioritized list of high-payoff targets (HPTs) whose loss to the enemy will contribute to the success of the friendly course of action.
- The intelligence collection plan answers the commander's PIRs, to include those HPTs designated as PIR. The plan, within the availability of additional collection assets, supports the acquisition of more HPTs. Determining the intelligence requirements is the first step in the collection management process. For a more detailed description, see FM 34-2.
- Target selection standards address accuracy or other specific criteria that must be met before targets can be attacked.
- The attack guidance matrix (AGM), approved by the commander, addresses which targets will be attacked, how, when, and the desired effects.

The products of the decide function are briefed to the commander. Upon his approval, his decisions are translated into the OPORD with annexes. Specific targeting products are required at echelons indicated in the table below.

TARGETING PRODUCTS

PRODUCT	CORPS	DIVISION	BRIGADE	TASK FORCE
High-payoff target list	Yes	Yes	Yes	Yes[1]
Intelligence collection plan[2]	Yes	Yes	Yes	
Target selection standards	Yes	Yes	Yes	Yes[1]
Attack guidance matrix[3]	Yes	Yes	Yes	Yes1

[1]At battalion task force level, the high-payoff target list, attack guidance matrix, and target selection standards should be addressed. The process is very informal and may not result in written products. The products produced by the brigade may be used by the battalion task force.

[2]At division level and below, a reconnaissance and surveillance plan supports the intelligence collection plan. (See FM 34-2-1.)

[3]At brigade level and below, the fire support execution matrix provides attack guidance. The fire support execution matrix is discussed in detail in FMs 6-20-40 and 6-20-50. (Also, see Chapter 5.)

Mission Analysis

At all echelons, the commander and his staff plan for future operations by analyzing one or more alternative COA. Each COA is based on the following:

- Mission analysis.
- Current and projected battle situations.
- Anticipated opportunities.

The process begins with receipt of a mission, whether assigned by higher headquarters or deduced by the commander. The commander, either with or without input from his staff, analyzes the mission, He considers tasks that must be performed and their purpose and limitations on the unit. The completed analysis is the basis for developing a restated mission. The restated mission is the basis from which to start the targeting process.

Intelligence Preparation of the Battlefield

The IPB provides much of the information for the intelligence estimate and the targeting process. IPB is the foundation for the rest of the targeting process. IPB includes electronic preparation of the battlefield (EPB). It is a continuous and systematic method for analyzing the enemy, weather, and terrain in a geographical area. This method evaluates enemy capabilities and predicts enemy COA with respect to specific battlefield conditions. Appendix A covers IPB with regard to the targeting process in greater detail. (Also see FM 34-130.)

Target Value Analysis and War-gaming

The battlefield environment, the effects of the environment on combatants, and the threat are considered in IPB analysis to arrive at an intelligence estimate. TVA yields HVTs for a specific enemy COA. Target spread sheets identify the HVTs in relation to a type of operation. The target sheets give more detailed targeting information for each specific HVT. The information on target spread sheets and target sheets is used during the IPB and the war-game processes. Both tools are developed by the G2 all-source production section. Both are discussed in detail in Appendix A.

TVA is a detailed analysis of the enemy in selected COAs. The TVA uses the following enemy characteristics:

- Doctrine.
- Tactics.
- Equipment.
- Organizations.
- Expected behavior.

The TVA methodology provides a relative ranking of target sets, or categories. It begins when the target analyst in the G2 or S2 places himself in the position of the enemy commander. The target analyst, in coordination with other staff members, war-games the operation.

During war gaming, alternative friendly COA are analyzed in terms of their impact on enemy operations and likely responses. The enemy battlefield functions that must be attacked to force the best enemy response are identified. The commander and his staff analyze the criticality of friendly battlefield functions with regard to a specific COA. The best places to attack HPTs in relation to the friendly COA are identified. These places are called target areas of interest (TAIs). TAIs are points or areas where the friendly commander can influence the action by lethal and/or nonlethal fires and/or maneuver. Decision points (DPs) or decision time phase lines are used to ensure that the decision to engage or not to engage occurs at the proper time. DPs and TAIs are recorded on the G3's decision support template (DST). The purpose of war gaming is to finalize individual staff estimates and to develop all of the following:

- Scheme of maneuver.
- Fire support plan.
- Friendly DSTs.

War gaming also identifies HVTs in priority that are critical to the success of the enemy mission. In addition, it identifies the subset of HVTs which must be acquired and attacked for the friendly mission to succeed. The subset is the HPTs.

The G3 or S3 normally leads the war game and role-plays the friendly COA. He establishes the technique and recording method for the war game. The G2 or S2 role-plays the enemy's most dangerous and likely COAs by using enemy doctrine and tactics. When available, the G5 or S5 war-games the civilian COAs. The deputy FSCOORD or FSO advises the G3 on using available fire support systems and records the needs for fire support. He also uses the war game to determine adequacy of fire support. He works with the G2 or S2 to ensure fill use of fire support target acquisition assets in the intelligence collection plan. The air liaison officer (ALO) and deputy or assistant aviation officer advise on availability and employment of air assets. They identify necessary airspace coordination measures. Other key staff officers who may not participate full time in the war game but who should be consulted consist of the following:

- Logistics officer for supportability considerations.
- Engineer officer for mobility, countermobility, and survivability considerations.
- Air defense officer (ADO) for force protection.

Input from the rest of the staff achieves a complete analysis of the impact of all BOSS. This ensures the AGM is synchronized with the DST, and selection of HPTs are supported by PIR and the intelligence collection taskings.

Target Selection

The staff war-games different COAs to develop the HPTs. As each friendly option is war-gamed by the staff the G2 or S2 identifies HVTs from which the staff nominates HPTs. The HPTs are targets which are critical to friendly success. Targets that can be acquired and attacked are candidates for the HPTL. Targets that need outside acquisition or attack are sent to higher headquarters. The key to HPTs is that they are critical to the enemy commander's needs (HVTs) and the friendly concept of the operation. They also support the friendly force commander's scheme of maneuver and intent. HFTs that need BDA are identified during the war game. The ACE collection manager helps identify and task the sensors needed for collection of the HPTs. The collection manager can determine the best sensor and its availability by referencing the intelligence synchronization matrix (ISM). Detailed discussion of the ISM is contained in FM 34-2.

Sensor/Attack Systems Matrix

The sensor/attack (atk) systems matrix is a targeting tool that can be used to determine whether the critical HVTs can be acquired and attacked. This matrix allows war-game participants to record their assessment of the ability of sensor systems to acquire and attack systems to attack HVTs at a critical event or phase of the battle.

> Note: There is no horizontal linear relationship between the sensor systems and the attack systems. A more detailed discussion of specific sensor and attack systems is contained in Appendix B.

SENSOR/ATTACK SYSTEM MATRIX

EVENT:

SENSOR/ATTACK SYSTEM MATRIX

HVT									HVT
SENSOR									ATK SYSTEM

S: SENSOR A: ATTACK

Marginal information at the top of the matrix has blanks for the battlefield event being assessed and the associated HVTs. Blank spaces for entry, by G2 plans, of available sensor systems are on the left. On the other side are spaces for entry, by G3 plans, of available attack systems. The war-game participants annotate systems selected for use by marking the appropriate block with an S for sensor and A for attack.

As the war game progresses from one phase to the next, the ability of sensor and attack systems to perform each task is determined. If they cannot, they must be moved or an alternate system selected. If no system is available within the command, support must be requested from higher headquarters. Following is an example of how the sensor/attack systems matrix may be used.

EXAMPLE SENSOR/ATTACK SYSTEM MATRIX

EVENT: ATTACK THROUGH SECURITY ZONE

EXAMPLE SENSOR/ATTACK SYSTEM MATRIX

HVT	COPS RISTA	M46	2S3	ADA	MAIN FWD CPs	AMMO	MNVR		HVT
SENSOR									ATK SYSTEM
EPW TEAM						S	A		MNVR BDE
CI TEAM			A	A		S			AHB
LRSD	S A								D/A 155-mm SP
TRQ-32	S	A	A		S				D/A MLRS
ALQ-151		A	A		S				C/A MLRS
PPS-5					A				EW: TLQ17
OH-58D	S A								OH-58D
AH-64	S			S			S A		AH-64
TLQ-17									EW: TLQ17
Q36CMR			S				A		CAS: 20/DAY
Q37CBR		S	S		A		A		AI: 5/DAY
UAV				S	S		S		
							A		PSYOP
					A				DECEPTION
CORPS/EAC									
Q37CBR		A	S						AHB
GRCS					S	A			AI
U2R		S A				S	S		ATACMS
JSTARS			S				S		EC-130
									AC-130
		A		A					C/A MLRS
OH-58D	S A								OH-58D
AH-64	S			S			S A		AH-64
S: SENSOR								A: ATTACK	

LEGEND:

ADA	= air defense artillery	**C/A**	= corps artillery
AHB	= attack helicopter battalion	**CAS**	= close air support
AI	= air interdiction	**CBR**	= counterbattery radar
AMMO	= ammunition	**CI**	= counterintelligence
ATACMS	= Army tactical missile system	**CMR**	= countermortar radar
CP	= command post	**LRSD**	= long-range surveillance detachment
COPs	= combat outposts	**MLRS**	= multiple launch rocket system
D/A	= division artillery	**MNVR**	= maneuver
EPW	= enemy prisoners of war	**RISTA**	= reconnaissance, intelligence, surveillance and target acquisition
EW	= electronic warfare		
FWD	= forward	**SP**	= self-propelled
JSTARS	= joint surveillance and target attack radar system	**UAV**	= unmanned aerial vehicle

The example assesses the ability of sensor and attack systems of a heavy division to acquire and attack HVTs of a threat division in deliberate defense. The event is assessed in the friendly force attack through the enemy 15 kilometer (km) deep security zone.

The HVTs listed at the top can be detailed or general, depending on the time available and the needs of the commander. In this example, the G2 identified the RISTA and COPs of the security zone as HVTs. In the main defense echelon, he identified the 2S3 152-mm self-propelled gun/howitzers, M46 130-mm guns, AD systems, command posts, ammunition, and maneuver elements.

Positioning of sensor and attack systems in time and space is critical to get the necessary depth of coverage and to maintain survivability. As the attack progresses, moving the sensor and attack systems for continuous support of the maneuver units presents a synchronization challenge.

In this example, all of the HVTs can be acquired and attacked. However, attack of the ammunition stockpiles projected to be in the area must be done by air interdiction. This means the division must nominate the stockpiles as an HPT to corps to be included in the air tasking order (ATO). When or where the division will acquire this target is not known. However, coordination with corps is required now if attack of the target is critical to success.

The matrix lets the G2 identify possible taskings of assets like long-range surveillance teams. Their mission in the example is to acquire the RISTA and COPS in the security zone. The OH-58D scout helicopter may also be tasked for this purpose. The FSCOORD can direct the AN/TPQ-36 and AN/TPQ-37 Firefinder radars to acquire the 2S3 and M46 artillery systems. However, some enemy artillery may not be in range for the Firefinders. Support may be needed from corps or higher. The FSCOORD identifies which targets his echelon can attack and which he must send to corps.

The matrix separates division-controlled assets from corps and echelons above corps (EAC) assets which can sense or attack targets in the division area. This helps the G2 and FSCOORD coordinate with higher headquarters.

Information from the sensor/attack systems matrix helps the staff develop the HPTL and AGM and provide targeting input to the intelligence collection plan. HPTs are identified and the means to acquire them are determined. The effects desired are established. The attack systems to provide the desired effects are selected. Time of target attack is determined on the basis of the commander's concept of the operation, war gaming, and friendly system availability. Coordination measures are established to control potential fratricide situations. The HPTL, AGM, and intelligence collection plan are developed for each phase or critical event of the battle.

High-Payoff Target List

The HPTL depicted in the figure on page 2-6 identifies the HPTs for a phase in the battle in the order of their priority. The example is not a prescribed format. Target value is usually the greatest factor contributing to target payoff. However, other things to be considered include the following:

- The sequence or order of appearance.
- The ability to detect identify, classify, locate, and track the target. (This decision must include sensor availability and processing time-line considerations.)
- The degree of accuracy available from the acquisition system(s).
- The ability to engage the target.
- The ability to suppress, neutralize, or destroy the target on the basis of attack guidance.
- The resources required to do all of the above.

Targets are prioritized according to the considerations above within specific time windows. The targeting team sets priorities for the targets according to its judgment and the advice of the FSE target analysts and the FAIO. Target spread sheets give a recommended priority and attack sequence. If the target spread sheet or war gaming departs from the commander's guidance, it is noted on the proposed HPTL to inform the commander of the conflict. The target category of the HPT is shown, either by name or by number, on the list. The category name and number are shown on the target spread sheet. The number of target priorities should not be excessive. Too many priorities will dilute the intelligence collection acquisition and attack efforts. The approved list is given to the operations, intelligence, and fire support cells. It is used as a planning tool to determine attack guidance and to refine the collection plan. This list may also indicate the commander's operational need for BDA of the specific target and the time window for collecting and reporting it.

HIGH-PAYOFF TARGET LIST

EVENT OR PHASE: _____

PRIORITY	CATEGORY	TARGET

NOTE: Any format which serves the purpose of an HPTL maybe used.

Intelligence Collection Plan

The G2 or S2 develops collection strategies that support the commander's concept of operations with available resources. Collection management orchestrates the intelligence system of systems to focus the intelligence effort in support of warfighting and operations other than war (OOTW). If BDA is needed, collection is planned to satisfy that requirement as well.

The collection plan provides a framework that collection managers use to determine, evaluate, and satisfy intelligence needs. Because of the diversity of missions, capabilities, and requirements, the collection plan has no prescribed doctrinal format. However, a dynamic collection plan should-

- Have as its basis the commander's priority intelligence requirements, to include those HPTs approved as PIRs.
- Help the commander see his area of interest.
- Provides synchronized coverage of the commander's area of operations.
- Have a five-dimensional battlefield approach: width, length, depth or altitude, time, and electromagnetic spectrum.
- Cover the collection capabilities of higher and adjacent units. Identify assets for acquiring and tracking HPTs and determining BDA on HPTs.
- Be flexible enough to allow response to changes as they occur.
- Cover only priority requirements.
- Be a working document.
- Contain precise and concise information.

The intelligence collection plan work sheet is a valuable aid in planning and directing the collection effort. For many needs, particularly those concerned with enemy capabilities and vulnerabilities, a written collection work sheet is advisable. The detail in which it is prepared, however, depends on the needs and coordination needed during the collection effort.

The selection of a format for the work sheet is based on the needs and resources available for collection management. However, the format selected must follow the logical sequence of collection management described in FM 34-2, Chapter 3. In addition, the plan must be easily adjustable to changing needs, situations, and missions. FM 34-2, Appendix A provides several recommended formats.

At division level and above, collection planning is complex. The PIRs of division and corps commanders often require in-depth analysis. Coordination of the overall collection effort is a major undertaking. For that reason, written collection work sheets prepared at these echelons are detailed.

At battalion and brigade, the collection plan work sheet is informal. It may consist of a list of available collection means plus brief notes on current intelligence requirements and specific formation to collect. The collection requirements are incorporated into the reconnaissance and surveillance plan. (See FM 34-2-1.)

Target Selection Standards

TSS are criteria, applied to enemy activity (acquisitions and battlefield information), used in deciding whether the activity is a target. TSS break nominations into two categories: targets and suspected targets. Targets meet accuracy and timeliness requirements for attack. Suspected targets must be confirmed before any attack.

TSS are based on the enemy activity under consideration and available attack systems by using the following:

- Attack system target location accuracy requirements (target location error [TLE]).
- Size of the enemy activity (point or area).
- Status of the activity (moving or stationary).
- Timeliness of the information.

Considering these factors, different TSS may exist for a given enemy activity on the basis of different attack systems. For example, an enemy artillery battery may have a 150-meter TLE requirement for attack by cannon artillery and a 1 km requirement for attack helicopters. TSS are developed by the FSE in conjunction with the military intelligence personnel. Intelligence analysts use TSS to quickly determine targets from battlefield information and pass the targets to the FSE. Attack system managers such as FSEs, fire control elements (FCEs) or fire direction centers (FDCs), use TSS to quickly identify targets for attack. Commands can develop *standard* TSS based on anticipated enemy order of battle and doctrine matched with the normally available attack systems.

TSS are given to the G2 or S2 by the FSE. Intelligence analysts use TSS to identify targets that are forwarded to an FSE. Intelligence analysts evaluate the source of the information as to its reliability and accuracy, confirm that the size and status of the activity meet the TSS, and then compare the time of acquisition with the dwell time.

> **NOTE:** Dwell time is the length of time a target is doctrinally expected to remain in one location.

Accurate information from a reliable source must be verified before declaring it a target if the elapsed time exceeds dwell time.

The G2 or S2 knows the accuracy of acquisition systems, associated target location error (TLE), and the expected dwell times of enemy targets. He can then specify whether information he reports to the attack system manager is a target or a suspected target. Some situations may require the system to identify friendly and neutral from threat before approval tofire is given. High-payoff targets that meet all the criteria should be tracked until they are attacked in accordance with the AGM. Location of targets that do not meet TSS should be confirmed before they are attacked. The TSS can be graphically depicted in a TSS matrix as shown in the figure below.

EXAMPLE TARGET SELECTION STANDARDS MATRIX

HPTL	ATTACK SYSTEM	TLE/ACQ TIME
FROG Lcher/MRL btry	MLRS/ATACMS	<1 km / 10 min
COP	GS cannon	100 m / 2 hrs
2S5/2S7 btry	MLRS	200 m / 20 min
SA-11	MLRS/ATACMS	200 m / 20 min
Armored reserves	Avn bde	1 km / 2 hrs

LEGEND: **ACQ TIME=** acquisition time; **Avn bde** = aviation brigade; **COP** = command observation post; **GS** = general support; **Lcher** = launcher; **m** = meter

NOTE: Acquisition time is the length of time from acquisition to attack that the target information is valid. It is based on estimated dwell time of the target.

The matrix lists each system that forwards targets directly to the FSE, FCE, or FDC. The effects of weather and terrain on the collection assets and on enemy equipment are considerd. TSS are keyed to the situation. However, the greatest emphasis is on the enemy situation, considering deception and the reliability of the source or agency that is reporting.

Attack Guidance

Knowing target vulnerabilities and the effect an attack will have on enemy operations allows a 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 decision points linked to events, areas (NAIs and TAIs), or points on the battlefield are developed. These decision points cue the command decisions and staff actions where tactical decisions are needed.

On the basis of commander's guidance, the targeting team recommends how each target should be engaged in terms of the effects of fire and attack options to use. Effects of fire can be to harass, suppress, neutralize, or destroy the target. The subjective nature of what is meant by these terms means the commander must ensure the targeting team understands his use of them. Application of fire support automation system default values further complicate this understanding.

- **Harassing fire** (JP 1-02) is fire 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 needs careful consideration. Harassing fire has little real effect on the enemy, subjects gun crews to an additional workload 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. Consider their use in military operations other than war, delaying actions, and economy of force operations.

- **Suppression fires** (JP 1-02) are 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 either specified in the call for fire or established by standing operating procedures (SOP). Suppression is used to prevent effective fire on friendly forces. It 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 lasts more than a few minutes. The FSCOORD needs to ask or calculate the *when* and *how long* questions.

- **Neutralization fires** (JP 1-02) are 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. Key questions the FSCOORD must ask are when and how long does the commander want the target to be neutralized. Most planned missions are neutralization fires.

- **Destruction fires** physically render the target permanently combat-effective or so damagd 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. Consider whether neutralization or suppression may be more efficient.

The decision of what attack system to use is made at the same time as the decision on when to acquire and attack the target. Coordination is required when deciding to attack with two different means (such as EW and combat air operations). Coordination requirements are recorded during the war-game process.

The attack guidance, as recommended by the targeting team, must be approved by the commander. This guidance should detail the following:

- A prioritized list of HPTs.
- When, how, and desired effects of attack.
- Any special instructions.
- HPTs that require BDA.

This information is developed during the war game. Attack guidance applies to both planned targets and targets of opportunity. Accordingly, attack guidance may address specific or general target descriptions. Attack guidance is provided to attack system managers via the attack guidance matrix.

Attack Guidance Matrix

The AGM consists of columns for the following:

- Target categories.
- Specific HPTs.
- Timing of attack.
- How targets are attacked.
- Restrictions.

An example of an AGM is shown below.

EXAMPLE ATTACK GUIDANCE MATRIX

PHASE/EVENT: Attack through the security zone

HPTL	WHEN	HOW	EFFECT	REMARKS
COPS	P	GS ARTY	N	PLAN IN INITIAL PREP
RISTA and OPs	P	GS ARTY	N	PLAN IN INITIAL PREP
2S1 and 2S3	P	MLRS	N	PLAN IN INITIAL PREP
2S6, SA9 and SA13	P	GS ARTY	S	SEAD FOR AVN OPS
REGT CP	A	MLRS	N	
RESERVE BN	P	AVN BDE	D	INTENT TO ATTACK RESERVE BN IN EA HOT
			H	

LEGEND:

WHEN(I) = IMMEDIATE
WHEN(A) = AS ACQUIRED
WHEN(P) = PLANNED

EFFECT (S) = SUPPRESS
EFFECT (N) = NEUTRALIZE
EFFECT (D) = DESTROY

bn = battalion
EA = engagement area
OPs = observation posts

prep = preparation
regt CP = regimental command post
SEAD = suppression of enemy air defense

NOTES:

1. This is only an example of an AGM. Actual matrixes are developed on the basis of the situation.
2. An H for harassing fires may be included in the EFFECT column during OOTW.

HPT List Column

This column lists the prioritized HPTs identified during war gaming. They have priority for engagement.

WHEN Column

Timing the attack of targets is critical to maximizing the effects. During war gaming, the optimum time is identified and reflected in the WHEN column. A **P** indicates that the target should not be engaged now but should be planned for future firing (for example, a preparation, a SEAD program, or a countermobility program) or simply should be put on file. An **A** stands for as acquired. Such targets should be engaged in the sequence that they are received in the headquarters, with respect to the priority noted in the HPT list. An **I** indicates the attack must be immediate and is a special case. This designation should be limited to a very small percentage of targets and only for the most critical types. Too many immediate targets are disruptive and lower the efficiency of attack systems. Immediate attacks take precedence over all others and are conducted even if attack systems must be diverted from attacks already underway. Some examples of very important targets include:

- Missile systems capable of nuclear, biological, and chemical (NBC) attacks.
- Division headquarters.
- NBC weapons storage and support facilities.

Multiple rocket launchers may be considered for immediate attack depending on their demonstrated effectiveness against friendly forces and their tactical employment. The G3 or S3 and FSCOORD or FSO must establish procedures within the TOC that allow for immediate attack of targets.

H0W Column

The HOW column links the attack system to the HPT. It is best to identify a primary and backup attack system for attack of HPTs.

EFFECTS Column

Effects refers to the target attack criteria. The targeting team should specify attack criteria according to the commander's general guidance. Target attack criteria should be given in quantifiable terms (for example, as a percentage of casualties or destroyed elements, time, ordnance, and allocation or application of assets). Also, it can be noted as the number of battery or battalion volleys.

REMARKS Column

Some examples of how this column should be used are:

- Note accuracy or time constraints.
- Note required coordination.
- Limitations on the amount or type of ammunition.
- Any need for BDA.

This column should note which targets should not be attacked in certain tactical situations (for example, targets not to be attacked if the enemy is withdrawing).

As the operation progresses through time, the AGM may change. The AGM is a tool that must be updated on the basis of the changing enemy situation. It should be discussed and updated during routine staff planning meetings. Consider separate AGMs for each phase of a phased operation.

Formats

The formats for the HPTL, TSS, and AGM presented in the preceding paragraphs are examples only. Targeting personnel must understand all the considerations that are involved in building these targeting tools. However, experienced staffs may prefer to develop their own formats tailored for their situation. Alternative formats are provided in Appendix C.

DETECT

Detect is the next critical function in the targeting process. The G2 or S2 is the main figure in directing the effort to detect HPTs identified in the decide function. To identify the specific who, what, when, and how for target acquisition, the G2 or S2 must work closely with all of the following:

- Analysis and control element (ACE).
- FAIO.
- Targeting officer and/or FSO.

This process determines accurate, identifiable, and timely requirements for collection systems. The ACE targeting section is responsible for ensuring that the collection system asset managers understand these requirements.

Information needs for target detection are expressed as PIR and/or IR. Their relative priority depends on the importance of the target to the friendly scheme of maneuver and tracking requirements coupled with the commander's intent. PIR and IR that support detection of HPTs are incorporated into the overall collection plan of the unit.

Targets are detected by the maximum use of all available assets. The G2 or S2 must focus the intelligence acquisition efforts on the designated HPTs and PIR. Situation development information, through detection and tracking, will be accumulated as collection systems satisfy PIRs and IRs. The collection manager considers the availability and capabilities of all collection assets within his echelon and those available to subordinate, higher, and adjacent units. He must also consider joint or combined force assets. He translates the PIR and IR into specific information requirements (SIR) and specific orders and requests (SOR). If possible, he arranges direct dissemination of targeting information from the collector to the targeting cell or targeting intelligence to the fire support element.

Detection Procedures

It is essential that all TA assets be used effectively and efficiently. Duplication of effort among available assets must be avoided unless it is required to confirm target information. At corps and division, the ACE develops and manages the collection plan to avoid duplication. At the same time, the ACE ensures that no gaps in planned collection exist. This allows timely combat information to be collected to answer the commander's intelligence and TA requirements. This information lets analysts develop the enemy situation and identify targets.

Desired HPTs must be detected in a timely, accurate manner. Clear and concise taskings must be given to the TA systems that can detect a given target. Mobile HPTs must be **detected** and **tracked** to maintain a current target location. Target tracking is inherent to detection. The FS cell tells the G2 or S2 the degree of accuracy required and dwell time for a target to be eligible for attack. The G2 or S2 must match accuracy requirements to the TLE of the collection systems. If the target type and its associated signatures (electronic, visual, thermal, and so forth) are known, the most capable collection asset can be directed against the target. The asset can be placed in the best position according to estimates of when and where the enemy target will be located.

As the assets collect information for target development, it is forwarded to the intelligence analysts of the ACE. They use the information in performing situation and target development. When a target specified for attack is identified by the analysts, it is passed to the FSE. The FSE executes the attack guidance against the target. Close coordination among the intelligence staff and the FSE is essential to ensure that the targets are passed to an attack system that will engage the target. To ensure the exchange is timely, the FAIO must have access to the ACE. The FAIOs can coordinate with the G2s and FSEs to pass HPTs and other targets directly to the FCE at the division artillery (div arty) TOC or, if approved by the maneuver commander, directly to a firing unit. The result is an efficient attack of targets which have been designated in advance for attack. Some units have found it advantageous to locate the FAIO in the ACE with communications to the FSE. When the FAIO gets intelligence information which warrants attack, he notifies the FSE. This allows the FAIO to focus on intelligence information analysis and the FSE to manage the control of fires. The targeting officer at the maneuver brigade and the S2 at battalion perform FAIO functions.

Tracking is an essential element of the detect function of the targeting process. Tracking priorities are based on the commander's concept of the operation and targeting priorities. Tracking is executed through the collection plan. Not all targets will be tracked. However, many critical targets move frequently or constantly. As such, these HPTs require tracking.

Synchronization of Intelligence Collection

During the conduct of operations, the G2 or S2 monitors execution of the collection plan. He uses an ISM to ensure the intelligence system gives answers to intelligence requirements in time to affect the decisions they support. As HPTs are identified, he informs the appropriate FSE and cross-cues collection assets to support BDA as needed.

During delivery, near real time collectors and observers are cued to continue tracking targets during their engagement. Planned or cued BDA collection and reporting helps determine if the engagement produced the desired effects. If it did not, continued tracking supports immediate reengagement.

To facilitate hand-off of target and tracking responsibilities, the G2 or S2 coordinates with higher and subordinate units. Requirements for intelligence in a given area can then be directed to the unit with responsibility for that area. Operational graphics are very useful when tracking particular threat units or HPTs. Passing responsibility for the target as it crosses the graphic ensures that it is not lost in crossing.

Synchronization continues during the collection management process. The G2 or S2 uses the products of the targeting process to develop SIR and SOR that synchronize the collection effort with the decision points of the command. He plans and allocates time for collection, processing, and dissemination.

During execution, the collection manager monitors the collection and reporting to ensure synchronization. He prompts asset managers to meet time-lines, cross-cueing and retasking as necessary to keep intelligence operations synchronized with the operations of the command.

Essential Target Information

Targets and suspected targets may be passed to the targeting team by a number of means. It is important that the essential information be passed for proper analysis and attack to take place. As a minimum, the target report must include the following:

- Reporting agency.
- Date-time group (DTG) of acquisition by the sensor.
- Description of the activity.
- Size of the target.
- Target location and altitude.
- TLE.
- Dwell time.
- Status (stationary or moving).

TARGET REPORT

LINE NUMBER

1. Reporting Agency: _____
2. Type of Sensor: _____
3. Report DTG: _____
4. Acquisition DTG: _____
5. Description: _____
6. Posture[1]: _____
7. Activity[2]: _____
8. Size[3]: _____
9. Location[4]: _____
10. Location error[5]: _____

NOTES:

[1]dug-in, in the open, in built-up areas, and so on.

[2]moving (direction) or stationary.

[3]unit size, diameter in meters, and so on.

[4]grid coordinates.

[5]+/- meters.

The DTG is important as the dwell time of the target is analyzed. The dwell time of the target determines whether or not to attack on the basis of the likelihood of the target having moved.

The target description and size are compared with the AGM. Description should include posture (dug-in or in the open) and activity (moving or stationary). This information is used to determine the following:

- Attack means.
- Intensity of attack.
- Number of assets to be committed.
- Other technical considerations.

The target location must be given as accurately as possible within the confines of timeliness. The targeting team can request TLE for a target on the basis of the attack criteria. However, a sensor may report a target with a large TLE. The target will still be processed and the team will determine whether to engage the target and by what means.

DELIVER

The deliver function of the targeting process executes the target attack guidance and supports the commander's battle plan once the HPTs have been located and identified.

Attack of Targets

The attack of targets must satisfy the attack guidance developed in the decide function. Target attack requires several decisions and actions. These decisions fall into two categories--tactical and technical.

Tactical decisions determine the following:

- The time of the attack.
- The desired effect, degree of damage, or both.
- The attack system to be used.

On the basis of these tactical decisions, the technical decisions describe the following:

- Number and type of munitions.
- Unit to conduct the attack.
- Response time of the attacking unit.

These decisions result in the physical attack of the targets by lethal and/or nonlethal means.

Tactical Decisions

Time of Attack

The time of attack is determined according to the type of target-planned target or target of opportunity.

Planned Targets

Some targets will not appear as anticipated. Target attack takes place only when the forecasted enemy activity occurs in the projected time or place. The detection and tracking of activities associated with the target becomes the trigger for target attack. Once the designated activity is detected the targeting team does the following:

- The G2 verifies the enemy activity as the planned target to be attacked. This is done by monitoring decision points and TAIs/NAIs associated with HPTs.
- The G2 validates the target by conducting a final check of the reliability of the source and the accuracy (time and location) of the target. Then he passes the target to the FSE.
- The current operations officer checks the legality of the target in terms of the rules of engagement (ROE).
- The FSE determines if the attack system(s) planned is available and still the best system for the attack.
- The FSE coordinates as required with higher, lower, and adjacent units, other services, allies, and host nation. This is particularly important where potential fratricide situations are identified.
- The FSE issues the fire mission request to the appropriate executing unit(s).
- The FSE informs the G2 of target attack.
- The G2 alerts the appropriate system responsible for BDA (when applicable).

Targets of Opportunity

High-payoff targets of opportunity are processed the same as planned HPTs. Targets of opportunity not on the HPTL are first evaluated to determine when or if they should be attacked. The decision to attack targets of opportunity follows the attack guidance and is based on a number of factors such as the following:

- Activity of the target.
- Dwell time.
- Target payoff compared to other targets currentlybeing processed for engagement.

If the decision is made to attack immediately, the target is processed further. The availability and capabilities of attack systems to engage the target are assessed. If the target exceeds the capabilities or availability of the unit attack systems, the target should be sent to a higher headquarters for immediate attack. If the decision is to defer the attack, continue tracking, determine decision point(s) for attack, and modify collection taskings as appropriate.

Desired Effects

Effects of fires can only be properly assessed by an observer or with an analysts. At brigade and TF, it is important that each target has a primary and alternate observer. The observers must understand the desired effects, when and for how long they are required. When in doubt about the commander's intent, ask--never assume. Emphasis on this issue during training will enhance the effectiveness and efficiency of fire support.

Attack System

The last tactical decision to be made is the selection of the appropriate attack system. For planned targets, this decision should have been made during the decide function of the targeting process. A check must be made to ensure that the selected attack system is available and can conduct the attack. If not, the targeting team must determine the best system available to attack the target.

The targeting team must always determine the attack system for targets of opportunity, subject to the maneuver commander's approval. All available attack assets should be considered. Attacking targets should optimize the capabilities of:

- Light and heavy ground forces.
- Attack helicopters.
- Field artillery.
- Mortars.

- Naval gunfire.
- Combat air operations (both CAS and AI).
- Offensive electronic warfare.

More information on attack assets is provided at Appendix B. The availability and capabilities of each resource is considered using the following

- Desired effects on the target.
- Payoff of the target.
- Degree of risk in the use of the asset against the target.
- Impact on friendly operations.

In some cases, the target attack must be coordinated among two or more attack systems. Engagement of a target by lethal means along with jamming or monitoring may be of greater benefit than simply firing at the target.

Technical Decisions

Once the tactical decisions have been made, the FS cell directs the attack system to attack the target. The FS cell provides the attack system manager with the following

- Selected time of attack.
- Effects desired in accordance with previous discussion.
- Any special restraints or requests for particular munitions types.

The attack system manager (FSCOORD, ALO, avn bde LO, NGLO, and so on) determines if his system can meet the requirements. If his system is unable to meet the requirements, he notifies the FS cell. There are various reasons an attack system may not be able to meet the requirements. Some are:

- System not available at the specified time.
- Required munitions not available.
- Target out of range.

The FS cell must decide if the selected system should attack under different criteria or if a different system should be used.

ASSESS

Combat assessment (CA) is the determination of the effectiveness of force employment during military operations.

CA is composed of three elements:

- BDA.
- Munitions effects assessment (MEA).
- Reattack recommendation.

In combination BDA and MEA, inform the commander of effects against targets and target sets. On the basis of this information, the threat's ability to make and sustain war and centers of gravity are continuously estimated. During the review of the effects of the campaign, restrike recommendations are proposed or executed. BDA is the timely and accurate estimate of damage resulting from the application of military force, either lethal or nonlethal, against a target. BDA in the targeting process pertains to the results of attacks on targets designated by the commander. Producing BDA is primarily an intelligence responsibility, but requires coordination with operational elements to be effective. BDA requirements must be translated into PIRs. BDA accomplishes the following purposes:

- At the tactical level, commanders use BDA to get a series of timely and accurate *snapshots* of their effect on the enemy. It provides commanders an estimate of the enemy's combat effectiveness, capabilities, and intentions. This helps commanders determine when or if their targeting effort is accomplishing their objectives.
- As part of the targeting process, BDA helps to determine if restrike is necessary. Commanders use this information to allocate or redirect attack systems to make the best use of available combat power.

The G3 through the targeting team, conducts MEA concurrently and interactively with BDA as a function of CA. MEA is an assessment of the military force in terms of the weapon systems and munitions effectiveness. This assessment is used as the basis of recommendation for changes to increase the effectiveness of the following:

- Methodology.
- Tactics.
- Weapon system.
- Munitions.
- Weapon delivery parameters.

The G3 develops the MEA by determining the effectiveness of munitions, weapons systems, and tactics. Munitions effect on targets can be calculated by obtaining rounds fired on specific targets by artillery assets. The targeting team may generate modified commander's guidance to the G4 concerning the following:

- Unit basic load (UBL).
- Required supply rate (RSR).
- Controlled supply rate (CSR).

The need for BDA for specific HPTs is determined during the decide fiction in the targeting process. BDA requirements should be recorded on the AGM and the intelligence collection plan. Commanders must be aware that resources used for BDA are the same resources used for target development and acquisition. The commander's decision must be made with the realization that an asset used for BDA may not be available for target development and acquisition. BDA information is received and processed by the ACE, the results of attack are analyzed in terms of desired effects. The results are disseminated to the targeting team. The targeting team must keep the following BDA principles in mind:

- BDA must measure things that are important to commanders, not make important the things that are easily measurable.
- BDA must be objective. When a G2 or S2 receives a BDA product from another echelon, he should verify the conclusions (time permitting). G2s and S2s at all echelons must strive to identify and resolve discrepancies between the BDA analyst at different headquarters.
- The degree of reliability and credibility of the assessment relies largely upon collection resources. The quantity and quality of collection assets influence whether the assessment is highly reliable (concrete, quantifiable, and precise) or has low reliability (best guess). The best BDAs use more than one collection discipline to verify each conclusion.

Each BDA has three components. They are:

- Physical damage assessment.
- Functional damage assessment.
- Target system assessment.

These three different assessments require different sensors, analytical elements, and time-lines. They are not necessarily subcomponents of each BDA report.

Physical Damage Assessment

Physical damage assessment estimates the quantitative extent of physical damage through munitions blast, fragmentation, and/or fire damage effects to a target. This assessment is based on observed or interpreted damage.

Functional Damage Assessment

Functional damage assessment estimates the effect of attack on the target to perform its intended mission compared to the operational objective established against the target. This assessment is inferred on the basis of all-source intelligence and includes an estimate of the time needed to replace the target function. A functional damage assessment is a temporary assessment (compared to target system assessment) used for specific missions.

Target System Assessment

Target system assessment is a broad assessment of the overall impact and effectiveness of all types of attack against an entire target systems capability; for example, enemy ADA systems. It may also be applied against enemy unit combat effectiveness. A target system assessment may also look at subdivisions of the system compared to the commander's stated operational objectives. It is a relatively permanent assessment (compared to a functional damage assessment) that will be used for more than one mission.

BDA may take different forms besides the determination of the number of casualties or the amount of equipment destroyed. Other information of use to the targeting team includes the following:

- Whether the targets are moving or hardening in response to the attack.
- Changes in deception efforts and techniques.
- Increased communication efforts as the result of jamming.
- Whether the damage achieved is affecting the enemy's combat effectiveness as expected.

Damage assessments may also be passive by compiling information in regards to a particular target or area. An example is the cessation of fires from an area. If BDA is to be made, the targeting team must give intelligence acquisition systems enough adequate warning for sensor(s) to be directed at the target at the proper time.

BDA results may change plans and earlier decisions. The targeting team must periodically update the decisions made during the decide function concerning the following:

- IPB products.
- HPTL.
- TSS.
- AGM.
- Intelligence collection plan.
- Operations plan.

On the basis of the BDA and MEA analysis, the G2 and G3 consider the level to which operational objectives have been achieved and make recommendations to the commander. Reattack and other recommendations should address operational objectives relative to the following:

- Target.
- Target critical elements.
- Target systems.
- Enemy combat force strengths.

A targeting checklist covering the decide, detect, deliver, and assess methodology is at Appendix D.

CHAPTER 3
TARGETING IN A JOINT ENVIRONMENT

Integral to the JFC'S concept of operations is his concept for joint fire support and interdiction. This concept describes the integration and synchronization of joint fire support and interdiction at tactical, operationl, and strategic leveIs. Some fires support operationl and tactical maneuver by land, air, and maritime forces. Other fires are independent of maneuver and orient on achieving specific operational and/or strategic objectives which supped the JFC's intent and concept of operations.

NOTE: The term **fires** in this chapter refers to joint fire support.

JOINT TARGETING PROCESS

Targeting occurs at all levels within a joint command. It is performed at all levels by forces capable of attacking targets with both lethal and nonlethal means. Targeting is complicated by the requirement to deconflict procedures and priorities between the different services or echelons or different nations in the same force. The joint force commander must synchronize attacks throughout all dimensions of the joint force.

TARGETING AND THE CAMPAIGN PLAN

The National Command Authority (NCA) or headquarters senior to the JFC provides broad guidance, priorities, and targeting support to JFCs. The joint force components--

- Identify requirements.
- Nominate targets that are outside their boundaries or exceed the capabilities of organic and supporting assets.
- Conduct execution planning.

The targeting process is cyclic. It follows a seven-step process consisting of the following:

- Guidance and priorities issued by the JFC.
- Identification of requirements by the components.
- Prioritization of the requirements.
- Acquisition of targets or target sets.
- Attack of targets by the components.
- Assessment of the effects of the attacks by the components and the JFC.
- Continuing guidance from the JFC on future firms or attack of targets.

The JFC establishes broad planning objectives and guidance for the integration of joint fires. He provides guidance for the campaign as a whole and for phases or major operations within the campaign. Subordinate commanders recommend how to use their combat power more effectively to achieve joint force objectives. With the advice of subordinate commanders, JFCs set priorities, provide targeting guidance, set objectives, and determine the weight of effort for various operations. Weight of effort for any aspect of joint targeting, for instance, may be expressed--

- In terms of percentage of total available resources.
- By assigning priorities for resources used with respect to the other aspects of the theater campaign or operation.
- As otherwise determined by the JFC.

After the JFC allocates resources and approves a target list, components plan and execute assigned missions. The missions may be part of their own operations or they may be in support of other components.

TERMINOLOGY

The following terms are described to ensure a mutual understanding of their use within this chapter:

Joint Fire Support

This term refers to fires of the supporting force against targets or objectives which are in or sufficiently near the area of operations (AO) of the supported force as to require detailed integration or coordination of the two. The fires may impact on either side of the FSCL within the joint force land component commander's (JFLCC) AO.

Joint fire support includes fires that assist land and amphibious forces to maneuver and control territory, populations, and key waters. Joint fire support can include the lethal or destructive operations of CAS by both fixed- and rotary-winged aircraft, naval gunfire, artillery, mortars, rockets, missiles, and nonlethal operations such as electronic warfare.

To facilitate the integration of this support, each component establishes an element to coordinate fires. Joint Pub 3-09 provides guidance for planning, coordinating, and executing joint fire support.

Interdiction

This term applies to actions to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces. (See Joint Pub 1-02.) Interdiction and maneuver are mutually supporting. Interdiction may complement surface operations at the operational level or may be independent of it. Interdiction is a powerful tool for the JFC. Interdiction-capable forces include all of the following:

- Land- and sea-based fighter and attack aircraft and bombers.
- Ships and submarines.
- Conventional airborne, air assault, or other ground maneuver forces.
- Special operations forces.
- Amphibious raid forces.
- Surface-to-surface, subsurface-to-surface, and air-to-surface missiles, rockets, munitions, and mines.
- Artillery and naval gunfire.
- Attack helicopters.
- Electronic warfare systems.
- Antisatellite weapons.
- Space-based satellite systems or sensors.

Air Interdiction

Applies to air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces.

Air interdiction (AI) is normally planned and executed by the joint force air component commander (JFACC). Air interdiction missions within the JFLCC's AO also assist tactical and operational maneuver. The JFLCC is responsible for the synchronization of maneuver, fires, and interdiction within his AO, including the area between his FSCL and forward boundary.

Air interdiction is conducted at such a distance from friendly forces that detailed integration of each air mission with fires and movement of friendly forces is not required. (See Joint Pub 1-02.) The JFACC is the supported commander for the JFC's overall air interdiction efforts.

Close Air Support (CAS)

This term applies to air actions against targets which are close to friendly forces and require detailed integration of each mission with the fire and movement of those forces. (See Joint Pub 1-02.) It enhances surface force operations by providing the capability to deliver a wide range of weapons and massed firepower at decisive points. In addition, CAS can do the following:

- Surprise the enemy.
- Create opportunities for the maneuver or advance of friendly forces through shock action and concentrated attacks.
- Protect the flanks of friendly forces.
- Blunt enemy offensives.
- Protect the rear of surface forces during retrograde operations.

CAS is a supplement to, not a substitute for, a ground commander's organic firepower. It is flown against

targets chosen by the ground commander and requires positive or procedural controls to achieve the desired effects with minimum risk. Organic attack helicopter units can perform CAS and are controlled by the ground component commander. Often times, they can provide the same effects as fixed-wing CAS but with a quicker reaction time.

Fixed-wing CAS is an element of joint fire support and is apportioned by the JFC. The JFACC translates the CAS apportionment decision into an allocation of CAS sorties to supported commands. Supported commands may further distribute their allocated CAS sorties among subordinate commands or AOs.

Apportionment

This term applies to the determination and assignment of the total expected effort by percentage and/or priority that should be developed to the various air operations and/or geographic areas for a given period of time. (See Joint Pub 1-02.) Apportionment helps the JFCs to ensure the weight of the JFACC air effort is consistent with the campaign phases and objectives. JFCs normally apportion air efforts by using the following considerations:

- Priority or percentage of effort into geographic areas.
- Against assigned mission-type orders.
- Against target sets.
- By categories significant for the campaign.

Interdiction target priorities within the boundaries of the land force are considered along with theaterwide interdiction priorities by the JFC. The JFACC will use the priorities to plan and execute the theaterwide interdiction effort.

Allocation

This term refers to the translation of the apportionment decision into total numbers of sorties by aircraft type available for each operation or task. The JFACC allocates apportioned air sorties to the functions, areas, and/or missions they support.

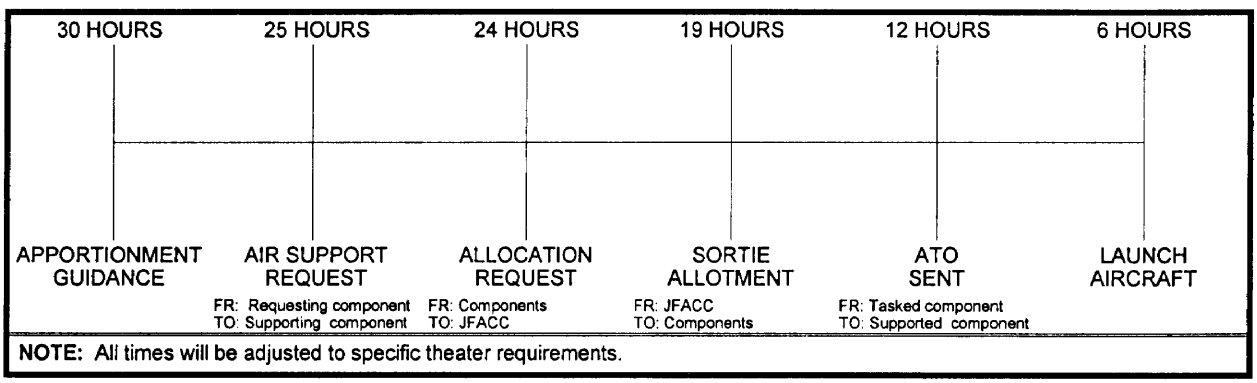
Distribution

This term refers to further assignment of apportioned and allocated CAS or direct support (DS) sorties to subordinate units to support operational and tactical priorities. Distribution is done by the land or Army component commander. Airlift, air reconnaissance, and air interdiction sorties are not normally distributed. They are provided on the basis of planning decisions and approved requests during execution of operation orders.

Air Tasking Order

The primary vehicle to execute joint targeting for air operations is the ATO. Other components performing missions in support of or in conjunction with the JFACC's ATO will normally be tasked by message or fragmentary order from the J3. Coordination between components is detailed in the special instructions section of the ATO. The JFACC's ATO is an OPORD to allow tasked units to plan and prepare missions. It is developed in coordination with both supported and supporting units. The ATO is developed to bring to bear the most combat air power possible on the enemy, where and when needed, as determined by the priorities. The ATO is used by current operations personnel in all components to monitor and help execute all missions tasked by the JFACC. (See the figure below.)

30-HOUR ATO TASKING CYCLE



NOTE: All times will be adjusted to specific theater requirements.

Battle Damage Assessment

BDA is a joint program to determine if the required target effects are being achieved for each of the components. The JFC assigns joint force reconnaissance assets to support combat assessment (CA) needs that exceed the capabilities of the component forces. The component commanders identify their requirements and coordinate them with the joint force J3 or designated representative.

JOINT TARGETING ORGANIZATIONS AND ACTIVITIES

J2, Intelligence

The J2 provides intelligence to all levels of command for planning, directing, and conducting operations. The J2 is involved in target prioritization, detection, validation, and combat assessment for all component operations.

Joint Intelligence Center

JFCs use a broad range of supporting capabilities to develop a current intelligence picture. These supporting capabilities include national intelligence and combat support agencies to include the following:

- National Security Agency (NSA).
- Central Intelligence Agency (CIA).
- Central Imagery Office (CIO).
- Defense Intelligence Agency (DIA).
- Defense Mapping Agency (DMA).

All the above agencies are coordinated in support of the JFC by the national military joint intelligence center (NMJIC). J2s integrate these supporting capabilities with the efforts of the joint intelligence center (JIC). Liaison personnel from all these agencies provide access to the full range of capabilities in their agencies and focus them on the JFC's intelligence requirements.

The JIC is the center of the intelligence activities supporting the JFC, J2, and components. JIC support to the components includes identifying and coordinating assignment or augmentation by specialized intelligence personnel and communications. J2 staff elements plan and direct joint force intelligence activities. The JIC engages in production and dissemination of intelligence for the command.

J3, Operations Directorate

The J3 provides input to the JFC concerning apportionment and target prioritization.

Joint Targeting Steering Group (JTSG)

The JTSG is not currently defined in joint doctrine, but is used in some unified commands. When the theater commander in chief (CINC) creates subordinate joint operations areas, he must balance the requirements for resources and support between JFCs and the needs of the theater. Subordinate JFCs may request resources or support beyond what was apportioned, allocated, or assigned. The CINC may establish a JTSG to help him or his J3 and/or J5 with reconciliation of competing requests in the theater. The CINC determines the composition and functions of the JTSG. The JTSG should have appropriate service component, special operations, national agency, coalition and joint staff representatives to recommend on theater strategic and/or supporting operational issues.

Joint Targeting Coordination Board (JTCB)

The JFCs may organize in their staffs to oversee targeting functions or may delegate the responsibility to a subordinate commander. Typically, JFCs organize JTCBs. If the JFC designates a JTCB it maybe an integrating center or a JFC-level review mechanism. In either case, it is a joint activity comprised of representatives from the staff, all components and, if required, their subordinate units. JFCs may task commanders or staff officers with the JTCB function on the basis of the JFC's concept of operations and the individual's experience and expertise.

The JFC defines the role of the JTCB. Typically, the JTCB will do the following:

- Review target information.
- Develop targeting guidance and priorities.
- Prepare and refine joint target lists.

The JTCB should not have a micro level focus. It should not be tasked to perform the same functions as the staffs of functional components or the JFC staff. The principal focus of the JTCB is on

operational levels of war and operational fires. The JTCB helps the JFC develop and communicate priorities and apportionment decisions. It does not select specific targets or methods of attack. The JTCB also reviews restricted targets and areas where special operations forces are operating to avoid endangering current or future operations. Before and during sustained operations, component commanders recommend to the JTCB priorities for BDA within their boundaries.

Joint Force Fires Coordinator

A joint force fires coordinator (JFFC) is not addressed in approved joint publications. If there is no JTCP, there is no single joint officer or agency to advise the JFC or coordinate all fires for the JFC during planning and execution. The JFACC plans, coordinates, and executes air power in support of the JFC but is not responsible for synchronizing interdiction with maneuver. Synchronization is the responsibility of the JFLCC or joint force Marine component commander (JFMCC) in his AO. The battlefield coordination element (BCE) relays synchronization requirements to the JFACC air operations center (AOC) during development of the master attack plan (MAP) and the ATO. The BCE is not responsible for synchronizing ground maneuver with interdiction. The JFC may establish a JFFC to fill the void in the absence of a JTCB or in conjunction with it. The JFC defines the role, organization, and functions of the JFFC. The JFFC would be organized with appropriate joint service and functional component representation to accomplish the following potential functions:

- Act as J3 action officer for joint fire support issues.
- Act as executive agent for setup, support and conduct of the JTCB.
- Monitor and/or review component target nominations.
- Coordinate joint fire support.
- Monitor compliance with the joint task force (JTF) commander's guidance for targeting and joint fires.
- Recommend targeting guidance and priorities, attack guidance, and permissive and restrictive fire support coordinating measures (FSCM) to the JTCB and/or JFC.
- Coordinate surface-to-surface deep strike weapons through the BCE for the JTF.
- Produce JTF plans for integrated joint fire support.
- Draft and publish JFC and/or JTCB decisions and guidance on fires and targeting to the JTF staff and components.

Joint Force Air Component Commander

The primary purpose of a joint force air component commander (JFACC) is to provide unity in employing air power for the benefit of the joint force as a whole in support of the JFC's objectives. The JFC normally designates a JFACC when two or more services employ air assets within the same AO. The JFACC is normally the component commander having the most air assets and the best capability to direct joint air operations. If the AO is primarily maritime, a naval commander can serve as the JFC or function as the JFACC. Composition of the JFACC's staff should include representation from all components.

Joint Force Land Component Commander

A JFC may designate a JFLCC when major kind elements of more than one service or nation are participating in an operation. The JFLCC is responsible for planning and executing land operations as directed by the JFC. The JFLCC is normally the commander with the most ground forces in the theater and the means to exercise battle command over assigned forces.

Fire support of land operations is executed at both the operational and tactical levels of war. To ensure adequate fire support is provided to land forces, the JFLCC may establish any or all of the following:

- Supporting and supported relationships between subordinate commanders.
- Fire control measures.
- Coordination procedures.
- Targeting considerations.

The need for fire support must be balanced against that available while maintaining an operational level perspective.

Within his boundaries, the JFLCC is the supported commander responsible for synchronization of maneuver and interdiction. He does this by setting targeting priorities and effects and timing of interdiction operations. Interdiction target priorities nominated by the JFLCC are considered along with theaterwide interdiction priorities by the JFC. They are reflected in the apportionment decision. The JFACC will use the priorities to plan and execute the theaterwide interdiction effort.

Joint Force Special Operations Component Commander

The joint force special operations component commander (JFSOCC) is the SOF component commander and exercises operational control (OPCON) over assigned and attached SOF. At the theater level, the JFSOCC is the special operations command (SOC) commander. The JFSOCC for a JFC may be a joint special operations task force (JSOTF) commander. He advises, plans, coordinates, and accomplishes assigned missions. When an AO encompasses the joint special operations area (JSOA) and there is no JFSOCC, the commander manages SOF operations through the special operations command (SOC). The special operations command and control element (SOCCE) commander directly coordinates and controls any special forces (SF) in the AO. When Ranger and sea-air-land (SEAL) units are supporting, they will provide liaison elements to the SOCCE.

THEATER AIR-GROUND SYSTEMS

Personnel assigned to or working with the theater air-ground systems (TAGS) must understand the decision processes and problems that the senior echelons in their chain of command face. With this knowledge, solutions to operational or TAGS coordination problems will be clearer. Component and subordinate commanders and staffs will better understand the factors that effect the TAGS functions and how to work within the system to receive or give support. Actions at the joint force level establish the *ground rules* for the TAGS, including the following:

- CINC's guidance, perspective, and area strategy.
- JFC's theater strategy.
- Command organization and relationships.
- The campaign plan.
- Assignment omissions and tasks.
- Apportionment of forces.

The figures on the next three pages represent the TAGS for other services. See FM 100- 103-2 for complete details. Discussion of targeting considerations are in the following appendixes:

- Appendix E: Air Force Targeting Considerations.
- Appendix F: Navy Targeting Considerations.
- Appendix G: USMC Targeting Considerations.
- Appendix H: Special Operations Forces Targeting Considerations.

COORDINATION

Supported and Supporting Relationships

Establishing supported and supporting relationships between components is a useful way to accomplish tasks. This concept applies equally to all dimensions of the joint force. As defined in Joint Pub 3-O:

> *Unless limited by the establishing directive, the commander of the supported force has the authority to exercise general direction of the supporting effort. General direction includes the designation of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency. The supporting commander has the responsibility to ascertain the needs of the supported commander and take such actions to fulfill them as is within existing capabilities, consistent with priorities and requirements of other assigned tasks. Normally, the supporting commander is permitted to prescribe the tactics, methods, communications, and procedures to be employed by elements of the supporting force.*

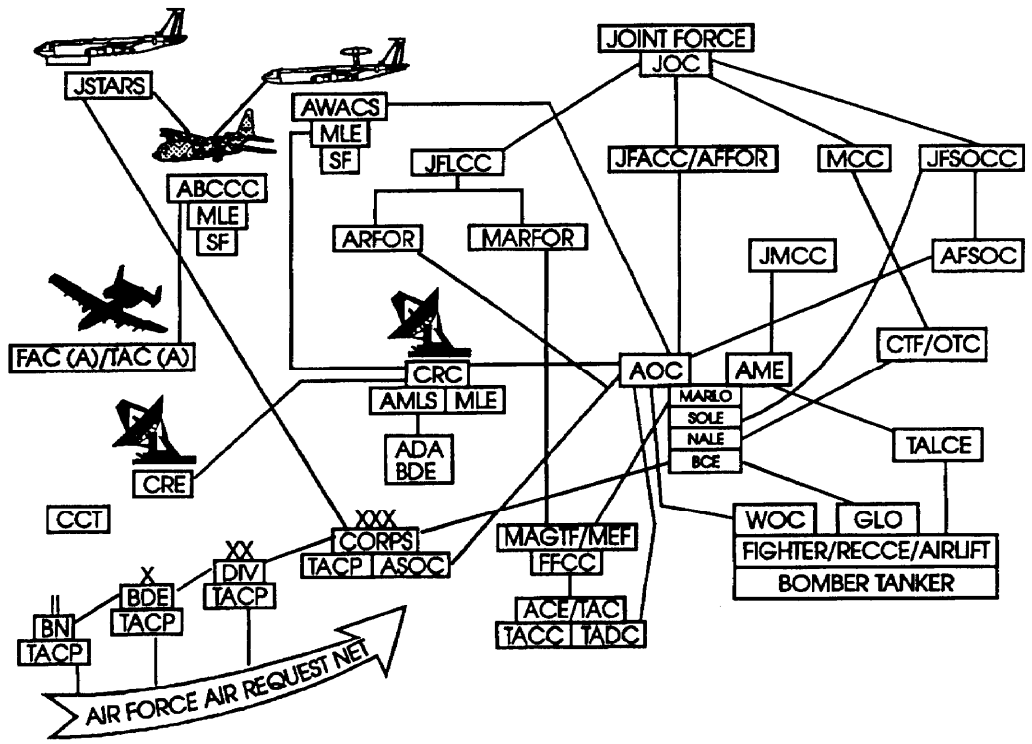
The establishing directive indicates the purpose of the relationship in terms of the effect desired and the scope of the actions to be taken. It should include the following:

- The strength of the forces allocated to the supporting mission.
- The time, place, and duration of the supporting effort.
- The priority of the supporting mission relative to other missions of the supporting force.

- The authority, if any, of the supporting force to depart from its supporting mission in the event of an exceptional opportunity or an emergency.
- The general or special authority for any operational or other instruction to be issued by the forces being supported or by other authority in the action areas.

The above are key considerations to be addressed by joint planners as they impact on component targeting recommendations and decisions.

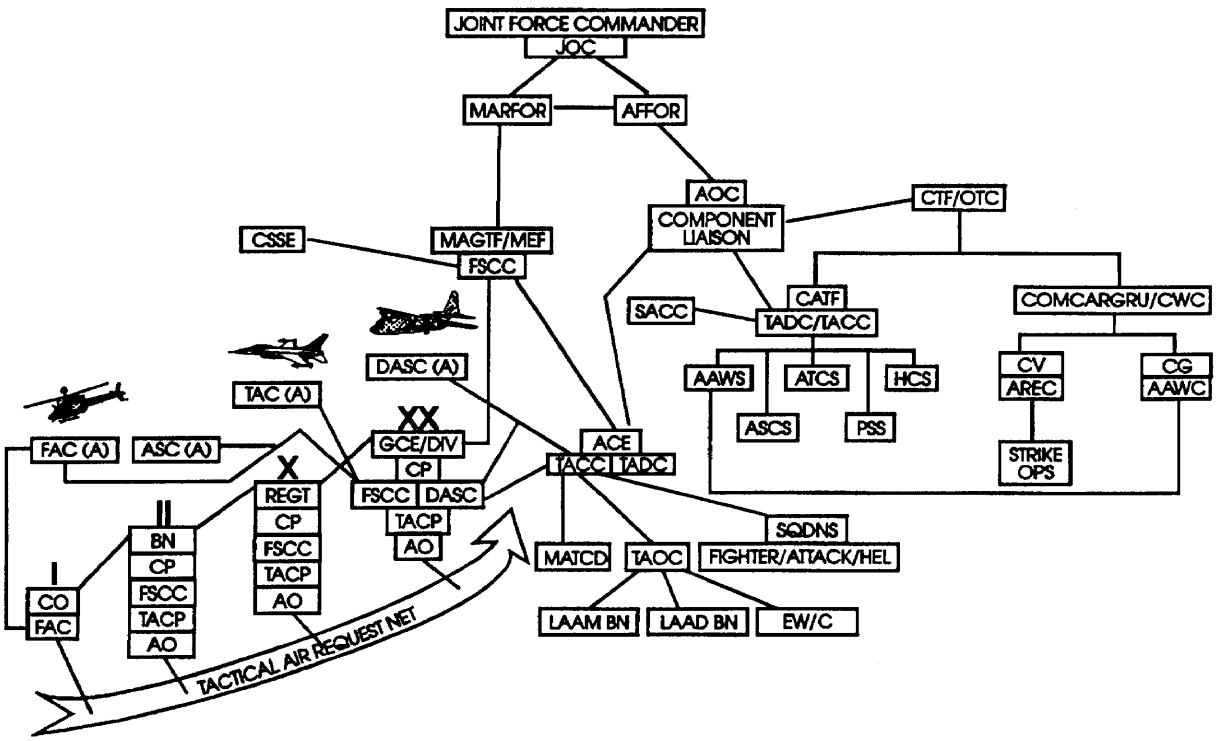
THEATER AIR CONTROL SYSTEM COORDINATION LINKS



LEGEND:

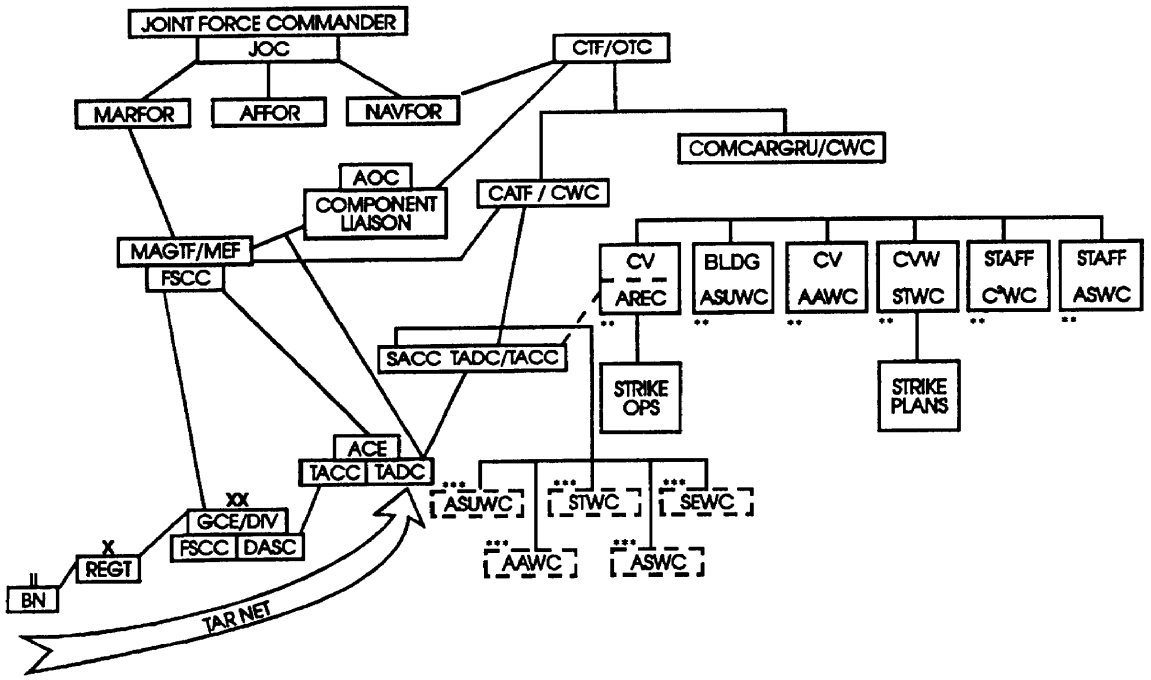
ABCCC	= airborne battlefield command and control center	**MAGTF**	= Marine air ground task force
ACE	= aviation combat element (USMC)	**MARFOR**	= Marine forces
AFFOR	= air force forces	**MARLO**	= Marine liaison officer
AFSOC	= air force special operations command	**MCC**	= maritime component commander
AME	= air mobility element	**MEF**	= Marine expeditionary force
AMLS	= air space management liaison section	**MLE**	= Marine liaison element
AOC	= air operations center	**NALE**	= naval liaison element
ASOC	= air support operations center	**OTC**	= officer in tactical command
AWACS	= airborne warning and control system	**RECCE**	= reconnaissance exploitation
BCE	= battlefield coordination element	**SOLE**	= special operations liaison element
CCT	= combat control team	**TAC**	= tactical air controller
CRC	= control and reporting center	**TAC(A)**	= tactical air controller (airborne)
CRE	= control and reporting element	**TACC**	= tactical air command center (USMC)
CTF	= commander task force	**TACP**	= tactical air control party
FAC(A)	= forward air controller (airborne)	**TADC**	= tactical air direction center
FFCC	= force fire coordination center	**TALCE**	= tactical airlift control element
GLO	= ground liaison officer	**WOC**	= wing operations center
JMCC	= joint movement control center		
JOC	= joint operations center		

MARINE AIR COMMAND AND CONTROL SYSTEM COORDINATION LINKS



LEGEND:	AAWC	= anti-air warfare commander	EW/C	=	early warning/control
	AAWS	= anti-air warfare system	FAC	=	forward air controller
	AO	= air officer	FSCC	=	fire support coordination center
	AREC	= air resource element coordinator	GCE	=	ground combat element
	ASC (A)	= air support control (airborne)	HCS	=	helicopter coordination section
	ASCS	= air support control section	HEL	=	helicopter
	ATCS	= air traffic control section	LAAD	=	low-altitude air defense
	CATF	= commander amphibious task force	LAAM	=	light antiaircraft missile
	CG	= guided missile cruiser	MATCD	=	Marine air traffic control detachments
	COMCARGRU	= commander carrier group			
	CSSE	= combat service support element	PSS	=	plans and support section
	CV	= aircraft carrier	SACC	=	supporting arms coordination section
	CWC	= composite warfare command			
	DASC	= direct air support center	SQDNS	=	squadrons
			TAOC	=	tactical air operations center

NAVY TACTICAL AIR CONTROL SYSTEM COORDINATION LINKS



LEGEND:

AAWC	= anti-air warfare commander	CVW	= carrier air wing
ASUWC	= antisurface warfare commander	DASC	= direct air support center
ASWC	= antisubmarine warfare commander	NAVFOR	= Navy forces
BLDG	= building	SEWC	= space and electronic warfare center
CATF	= commander amphibious task force	STWC	= strike warfare commander
C^2WC	= command and control warfare commander	TAR	= tactical air reconnaissance

NOTES: Amphibious operations (amphibious objective area):

** Battle group warfare commanders will support the AOA when the battle group is within range.
*** When the battle group is unable to support the AOA, the OTC will assign functions to specific units in support of the CATF.

Control and Coordination Measures

JFCs employ various maneuver and movement control and FSCMs to facilitate joint operations. The measures may include any and all of the following:

- Boundaries.
- Phase lines.
- Objectives.
- Coordinating altitudes.
- Air defense (AD) areas.
- Amphibious objective areas.
- Submarine operating patrol areas.
- Minefield.

Boundaries define surface areas to facilitate coordination and deconfliction of operations. In land and sea warfare, a boundary is a line by which areas between adjacent units or formations are defined. A naval boundary may be designated for seas adjacent to land conflict to enhance coordination and execution of naval operations.

The JFC may use lateral, rear, and forward boundaries to define operational areas for land and maritime operations. He can size, shape, and position the boundaries to enable land and naval force commanders to accomplish their mission while protecting deployed forces. Theater air sorties are not constrained by land boundaries. However, since the airspace above surface areas is used by all components of the force, the JFC establishes airspace control measures, to include coordinating altitudes, to deconflict the uses required of the space. (See Joint Pub 3-52.) If a land force commander desires to shoot or maneuver beyond his boundaries, he must first coordinate with the appropriate commander.

The JFC determines the size, shape, and positioning of the land or naval force boundaries. He does so on the basis of his concept of operations and the land or naval force commander's need for depth to maneuver rapidly and to fight at extended ranges. Within the boundaries, the operational force commander is designated the supported commander. He is responsible for the synchronization of maneuver and fires.

Boundaries may require frequent adjustment on the basis of actual and projected rate of maneuver and the operational environment. The supported commander should state clearly his concept of operations to supporting commanders. They in turn apply joint fire support and interdiction within the supported commander's boundaries to attack targets or objectives. Supported commanders should provide supporting commanders as much latitude as possible in planning and executing operations. Supported commanders should state how they envision fire support and interdiction aiding maneuvers and what they want to accomplish. They should also state what actions they want to avoid. Actions they might want to avoid could include destruction of key transportation nodes or the use of certain munitions in specified areas.

Fire Support Coordinating Measures

Joint FSCMs and the procedures associated with them ensure all of the following:

- Troop safety is not jeopardized.
- Other attack means are not interfered with.
- Operations of adjacent subordinate units are not disrupted.

Within their operational areas, land and naval force commanders employ permissive and restrictive FSCMs to enhance the following:

- Expeditious attack of targets.
- Protection of forces, populations, critical pieces of infrastructure, and sites of religious or cultural significance.
- Deconfliction of fire support activities.
- Enhance future operations.

Maneuver commanders position and adjust FSCMs consistent with the following:

- Location of friendly forces.
- Concept of the operation.
- Anticipated enemy actions.
- Consultation with other affected commanders.

The primary purpose of permissive measures is to facilitate the attack of targets. Permissive measures

require no further detailed coordination for the engagement of targets with conventional means. Restrictive measures impose requirements for specific coordination before engagement of targets.

The FSCL is a permissive FSCM. It is established and adjusted by the appropriate land force commander within his boundaries in consultation with other affected commanders. Forces attacking targets beyond an FSCL should inform affected commanders, time permitting, to allow them to avoid fratricide, both in the air and on the ground. FSCLs facilitate the expeditious attack of targets of opportunity beyond the coordinating measure. Supporting elements may attack targets beyond the FSCL provided the attack will not produce adverse effects on, or to the rear of, the line. The FSCL is not a boundary--the synchronization of operations on either side of the FSCL is the responsibility of the establishing commander to the limits of his operational area.

The decision on where to place or even whether to use an FSCL requires careful consideration. If used, it is located on the basis of estimates of the situation and concept of operations. Location of enemy forces, anticipated rates of movement weapons capabilities, and tempo of the operation are considered in the commander's estimate, as well as other factors deemed appropriate. It is normally positioned closer to the forward line of own troops (FLOT) in the defense than in the offense. However, the exact positioning depends on the situation.

By establishing an FSCL at sufficient depth so as not to limit high-tempo maneuver, attack operations within their boundaries by forces not under their control are eased. It applies to all fires of air, land, or sea weapon systems using any type of ammunition against surface targets. (The FSCL is a term oriented to air-land operations; there is no similar term used at sea.)

An associated benefit of employing an FSCL is the reduction in potential for fratricide. Short of an FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land force commander. Commanders employ restrictive measures to enhance the protection of friendly forces operating beyond an FSCL.

Timely coordination of attacks beyond the FSCL is especially critical to air, land, and SOF commanders. Their forces may now be operating beyond an FSCL or may plan to maneuver on that territory in the future. Such coordination is also important when attacking forces are employing wide-area munitions or those with delayed effects. Finally, this coordination helps avoid conflicting or redundant attack operations. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and could waste limited resources. Further discussion on procedures for coordinating operations between the FSCL and forward boundary can be found later in this chapter.

The land force commander adjusts the location of the FSCL as required to keep pace with operations. In high-tempo maneuver operations, the FSCL may change frequently, such as every several hours. The establishing commander sends the change to higher, lower, adjacent, and supporting headquarters to ensure attacks are coordinated by the controlling agencies. Anticipated adjustments to the FSCL are sent to other elements of the joint force soon enough to reduce potential disruptions in their current and near-term operations.

COMPONENT TARGET PROCESSING

The following paragraphs discuss the joint force targeting process and target list development.

Joint Force Targeting Processing

All components are equipped with intelligence, targeting, and operational capabilities to support the JFC's campaign. All have established targeting tactics, techniques, and procedures (TTP) for planning their individual operations. The figure on the next page provides a comparison of the joint and service targeting methodologies that exist today. Component procedures are generally similar and include the processes of IPB, determination of enemy center of gravity, and determination of HVTs and HPTs. The components identify requirements and nominate targets that are outside their boundaries, or exceed the capabilities of organic and supporting assets, and conduct execution planning. The requirements and target nominations are made on the basis of the JFC's apportionment and sub-apportionrnent decisions. After the JFC makes the targeting and apportionment decisions, components plan and execute assigned missions. Targets that are submitted to the JFACC or the JTCB require, as a minimum, the following information:

- Component request number.
- Description (type of target, for example, airfield, armored brigade, logistical facility).
- Location (where the target will be at desired time of attack).
- Target composition (specific elements to be attacked, for example, CPs, tanks, personnel carriers, storage sites, communication nodes).
- Desired effects (destroy, neutralize, suppress, jam communications).
- Rationale and/or justification.

Target List Development Process.

Targets may be selected from a standing target list developed during the course of deliberate planning, such as the Defense Intelligence Agency (DIA) data base containing the basic encyclopedia of targets, or may emerge as a contingency develops. Primary responsibility for the development and maintenance of intelligence and target data bases rests with the theater JIC. Facilities and installations are studied to identify critical nodes and those of importance in the military, political, and economic infrastructure (center of gravity). All joint force components develop OPLANS to support the JFC's campaign plan. The J2 staff and other component intelligence staffs maintain and update the theater or JFC targeting data base to reflect component operational planning requirements. These factors along with the JFC's guidance and priorities determine target priorities. The JFC designates the agency responsible for developing the joint prioritized target list (JPTL).

TARGETING PROCESS

JOINT	ARMY/USMC	AIR FORCE/NAVY
JFC GUIDANCE AND PRIORITIES	*DECIDE*	OBJECTIVES AND GUIDANCE
COMPONENT REQIREMENTS		
REQIREMENT PRIORITIZATION	*DETECT*	TARGET DEVELOPMENT
TARGET ACQUISITION		WEAPONEERING
TARGET ATTACK	*DELIVER*	FORCE APPLICATION PLANNING
ASSESSMENT		EXECUTION PLANNING
JFC GUIDANCE	*ASSESS*	COMBAT ASSESSMENT

In some commands, as the situation evolves, the responsibility for maintenance of the JPTL shifts to the JTCB. Final prioritization is done by the JTCB based on the JFC's guidance. The JTCB submits the JPTL to the JFC for approval. Upon approval a joint integrated prioritized target list (JIPTL) is passed to the component commander for tasking and execution. The JFC will task each component to accomplish missions or target execution within their capabilities and direct coordination as required.

LAND COMPONENT COMMAND TARGETING

As a guiding principle, JFCs should exploit the flexibility inherent in joint force command relationships, joint targeting procedures, and other techniques to resolve the issues that can arise from the relationship between interdiction and maneuver. When maneuver is employed, JFCs need to carefully balance doctrinal imperatives that may be in tension, including the needs of the maneuver force and the undesirability of fragmenting theater air assets. Joint Pub 3-O, pp. IV-19, 20

A U.S. land component commander (JFLCC) follows the **decide, detect, deliver, assess** targeting process previously described to provide input to meetings conducted under the joint targeting cycle. However, the JFLCC concerns himself with the following:

- Isolating his subordinate commanders' surface battles.
- Providing his subordinate commanders with the space in which to conduct operations.
- Providing his subordinate commanders with the assets to support their needs for acquisition and attack systems.

The JFLCC targeting perspective is more planning than execution. His execution focus is primarily between his FSCL and the forward boundary of his area of operations.

In support of the JFC's campaign or operation plan and, more specifically, the JFLCC's surface operations, tasks in this area are predominantly of the following types:

- Counterair and anti-air warfare.
- Interdiction.
- Strategic attack.
- Intelligence gathering.

The JFC and component commander are challenged to develop and implement procedures to plan, coordinate, and execute operations in the area between the FSCL and forward boundary. These challenges include the following:

- Establish joint targeting procedures which help nomination and integration of component priority targets into the JFC campaign and/or OPLAN.
- Establish procedures for the transition of authority between commands during operations. The procedures must address general direction authority within surface areas of operation, airspace control, and FSCMs.
- As the JFACC integrates target nominations into the overall theater interdiction effort ensure the supporting air interdiction in the JFLCC AO meets JFLCC targeting requirements.
- Establish sensor-to-shooter links which support command and control requirements for acquisition and attack throughout the JFC area of responsibility (AOR) and eliminate the possibility of creating sanctuaries for opposing forces.
- Provide the supporting commander flexibility in planning, coordinating, and executing the supporting effort to ease his concerns for safety and mission effectiveness.
- Identify problems which may cause noncompliance with support requirements by supporting commanders or with FSCL coordination agreements.

APPORTIONMENT AND ALLOCATION

JFLCC planners must understand the apportionment and allocation processes to synchronize maneuver, fires, and interdiction in the JFLCC AO. This is an overview of those processes. Also discussed are JFLCC staff involvement in the process of ensuring JFLCC and air component commander concerns are addressed during the planning and target nomination process. Initial JFC analysis and assignment of component missions affects the apportionment process.

Where maneuver is part of the JFC concept, the JFC may synchronize maneuver and interdiction. Interdiction operations must conform to and enhance the JFC scheme of maneuver. To facilitate theater operations, the JFC may establish boundaries in the theater for the conduct of operations. Surface boundaries are not intended to complicate joint operations. They are intended to clarify responsibility for synchronization of operations in the boundaries.

JFC objectives, intent, and priorities given in mission assignments and coordinating requirements enable subordinates to exploit the capability of their forces while minimizing friction generated by competing requirements. Interdiction requirements will often exceed means, requiring the JFC to prioritize requirements.

Land and naval force commander responsible for synchronizing maneuver and interdiction within their AOs must be knowledgeable of JFC priorities. (See JP 3-0, p IV-20.)

Apportionment

Apportionment is the assignment of the total resources by percentage and/or priority that can be devoted to air operations and/or geographic operations for a time period. The total resources made available to the JFACC is determined by the JFC in consultation with subcommanders on the basis of assigned objectives and the concept of operations. JFCs normally apportion by priority or percentage available to geographic areas, against mission-type orders, and/or by categories significant for the campaign. These categories can include the following:

- Strategic attack.
- Interdiction.
- Counterair.
- Maritime support.
- CAS.

After consulting with other component commanders, the JFACC makes an apportionment recommendation to the JFC. (See the figure on page 3-15.)

It is important that the JFLCC know which forum is designated for discussion of apportionment considerations. The forum may be in the agenda of specific meetings sponsored by the JFC such as planning meetings, or the discussion might be included in meetings sponsored by the JTSG (if established) or JTCB (if established). It could also be a topic for discussion in meetings sponsored by the JFACC such as a guidance, apportionment and targeting (GAT) meeting.

The JFLCC must understand JFC intent and be able to articulate JFLCC interdiction needs to support operational and tactical maneuver. The JFLCC must be able to present at the meetings the following:

- Concept(s) of operational maneuver in support of the JFC plan and intent.
- Associated general or specific HPTs as identified as critical to maneuver success.
- Associated target priorities and timing of attack.
- A rationale which provides the basis for target designation, priorities, and desired effects.

The JFLCC must be able to make the JFACC aware of the impact of attacking or not attacking JFLCC HPTs as requested. This is critical in a resource-constrained environment to support integration of JFLCC priorities by the JFACC into the overall theater interdiction effort. The JFLCC provides his targeting objectives, requirements (including timing and coordinating instructions), and the targets he wants attacked. The JFACC plans, coordinates, and executes the supporting effort as directed by the JFC.

Targeting objectives are normally discussed after presentation of the enemy situation, capabilities, and associated HVTs. Targeting objectives should be expressed in the form of mission type orders against general or specific targets. The JFLCC should not present and try to support a voluminous *measle sheet* target list. Good examples for targeting objectives which support JFACC planning, coordination, and execution include the following:

Delay southward movement and arrival of the 2d Shock Armored Division at EA Eagle until 1600Z D+22 to permit US 52d Infantry Division to establish area defense.

Divert the 2d Shock Armored Division to EA Eagle.

Disrupt the command and control capability of the Crasnian Army Group from D+10 to D+ll to degrade their ability to respond to the penetration of US X Corps along axis Strike.

Destroy the army command post vicinity of Crasnia between 0300Z and 0400Z D+25 to degrade their command and control during the counterattack by US X Corps.

Destroy POL and ammunition storage facilities and transport to degrade Crasnian Army Group resupply capability during its projected attack south on D+10 through D+14.

Disrupt the command and control capability of the insurgents, the People's Democratic Group (PDG), between 0100Z and 0600Z each day to degrade their ability to conduct nightly raids on the host nation (HN) radio, television, and power stations.

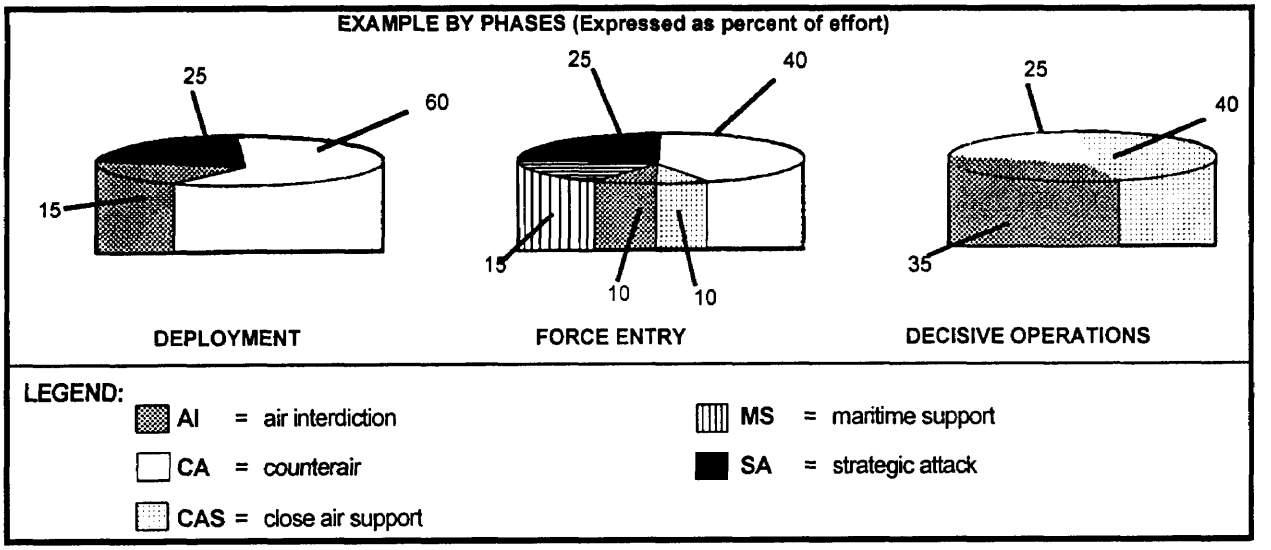
The targeting objective is easier to state than it is to measure successful accomplishment. The JFLCC must be able to answer the difficult question, How will I know when I have achieved the objective? The answer is critical when successful accomplishment establishes a condition supporting a command decision.

JFLCC requirements are stated in the above targeting objectives. These include the effect desired on the target and the timing of the target attack. Other requirements are implied in the above targeting objectives. These include coordination for airspace control, air defense, details of joint air attack team (JAAT) missions, and critical synchronization considerations. Additional JFLCC requirements may include restrictions or coordinating instructions for JFACC interdiction operations in the JFLCC AO. These may include restricting the following:

- Attack of targets which may be important to future land operations (bridges, airfields, dams).
- Use of cluster munitions in certain areas.
- Air operations in certain areas to facilitate planned land-based deep operations (for example attack helicopters, unmanned aerial vehicles, air assault operations).

For operations in the JFLCC AO, this JFACC coordination takes place with the JFLCC headquarters via the AOC and/or BCE. This assumes that the JFLCC is an ARFOR commander. The discussion contained in the remainder of this chapter assumes that the JFLCC is an ARFOR commander as opposed to Marine, United Nations, combined, or other commander.

Specific targets to be attacked may be identified, but such requests should be limited to targets which are extremely critical to the success of ground operations. Once mission requests are given to the JFACC, his joint air operations center (JAOC) identifies specific targets based on intelligence to achieve JFLCC targeting objectives. The BCE can facilitate getting additional target nominations from the JFLCC G2 when necessary. This reduces the target management burden on the JFLCC staff monitoring JFACC supporting efforts and attack of a few specific HPTs.



To support planning an apportionment recommendation may address a period 96 or more hours into the future. However, the JFC apportionment decision is normally made after requests for air support have been passed from the JFLCC to the BCE. JFLCC planning also normally addresses a period 96 or more hours into the future. This means perceived requirements are based on projected enemy capabilities and actions. This highlights the importance of operational level intelligence preparation of the battlefield and joint war gaming to support JFLCC requirement forecasts.

When land operations are critical to the success of the JFC operations, the JFLCC recommends to the JFC priorities and timing for air support in the JFLCC AO.

Apportionment can be expected to change during the phases of force projection operations. For example, during forced entry operations, counterair will likely require a greater percentage of effort while CAS requirements are minimal. The reverse will be true during later decisive operations when the JFC may direct that land operations have priority of support and air superiority has been achieved.

Allocation

Following the JFC'S apportionment decision, the JFACC allocates apportioned air sorties to the fictions, areas, and/or missions they support. On the basis of the JFC's apportionment decision, internal requirements, and air support request (AIRSUPREQ) messages, each air component sends an allocation/request (ALLOREQ) message to the JFACC not later than 24 hours before the air tasking day. ALLOREQ messages contain the following information:

- Number of sorties by assigned mission and type aircraft to be flown during the air tasking day.
- Excess sorties not needed by the air component and available for joint or cross-force taskings by the JFACC.
- Request for additional air support beyond the capability of the air component.

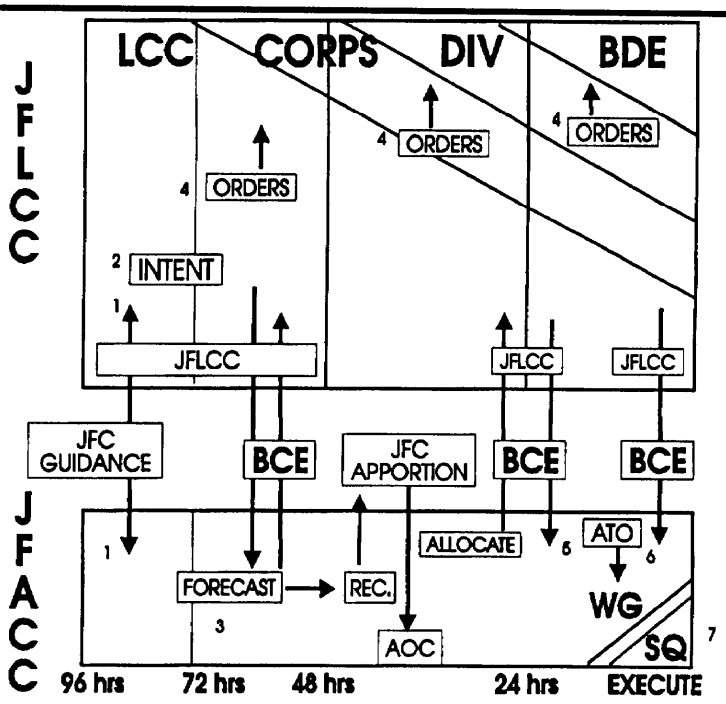
Allotment

The JFACC reviews each ALLOREQ and sends a sortie allotment (SORTIEALOT) message back to the component at least 19 hours before the tasking day or in accordance with established operations plans. The SORTIEALOT message confirms the ALLOREQ and provides general guidance for planning operations. The SORTIEALOT contains three kinds of instructions:

- Revisions, if any, to the components planned allocation of sorties. With JFC concurrence, the SORTIEALOT message could convey revisions or redirection of missions outside of the apportionment guidance.
- Approval or changes to the component requests and allotment of excess sorties from other components.
- Revisions to mission data for component requests, such as a changed mission priority or time on target. Component liaison elements (for example, the BCE) and the JFACC usually coordinate such revisions in advance.

The figure on the next page illustrates the procedure.

INTEGRATED AIR GROUND OPERATIONS PLANNING PROCESS



EVENTS:

1. Guidance from the JFC includes his intent for use of combat air in terms of overall objectives and missions.
2. The LCC provides the ACC with his requests for use of combat air through the BCE and articulates how these support his concept of maneuver.
3. The ACC provides the LCC with a forecast of CAS and AI capabilities. After consultation with the LCC, the ACC provides the JFC with an apportionment recommendation.
4. Orders include the concept for the use of forecast combat air with expected results as part of the commander's *concept of fires.* Prioritized target list are prepared by the JFLCC and subordinate commanders.
5. The JFLCC provides detailed target information through the BCE to the air operations center (AOC) for development of the air tasking order (ATO).
6. The JFLCC ensures targets on the ATO are validated through the BCE to the AOC before attack.
7. JFACC wings and squadrons execute the ATO.

PROCEDURES FOR COORDINATING OPERATIONS BETWEEN THE FSCL AND FORWARD BOUNDARY

All procedures for operations and support should be agreed upon during mobilization or predeployment. If that is not possible, then they should be agreed upon no later than the deployment stage of force projection operations and sooner if on-the-shelf contingency plans permit. The starting arrangements may be refined later as required Supported units provide SOPs to supporting commands via liaison sections. Time permitting, they train appropriate command and staff personnel on joint staff procedures. The training addresses the following:

- Mission-essential tasks, including coordination procedures for establishing and changing graphical control measures.
- Establishing and changing FSCM and airspace control measures (ACM) (with emphasis on the FSCL).
- Target nomination procedures.
- Procedures for coordinating and/or informing target attack on either side of the FSCL.

This eases the transition of command and control as ground forces arrive in theater, conduct entry operations, and execute operation plans.

During deployment and forced entry operations, all components plan, coordinate, and execute operations supporting the JFC plan. An Army force structure may follow Navy, Marine, or Air Force forces in force projection operations. JFACC responsibility for planning and execution rests with either a designated

NAVFOR commander or AFFOR commander, depending on who has a more suitable command and control infrastructure. The JFLCC provides liaison to the JFACC to monitor activities and provide planning support for forced entry operations. The liaison element takes advantage of JFACC staff work to further develop the intelligence estimate, noting BDA reports and combat assessment. If the NAVFOR is providing the initial JFACC and transition to the AFFOR is anticipate the JFC specifies how and when transition of JFACC authority occures. JFLCC liaison must be prepared for this transition as well.

During forced entry operations, the JFLCC normally requires a small AO until the lodgment is established and conditions are met for decisive land operations. This transition is accompanied by an increase in the active dimensions of the JFLCC AO. JFLCC advance parties and liaison teams prepare for the transition to the associated increase in scope of the JFLCC's general direction authority within his designated AO. The JFACC has been planning, coordinating, and executing operations in depth to achieve the conditions required for decisive ground operations. The JFACC must be prepared to meet the increased targeting requirements and priorities of the JFLCC.

The JFC provides his vision for accomplishing his mission. He provides planning guidance and establishes an AO large enough for the JFLCC to maneuver rapidly and operate at extended ranges. Also, following discussion of functional command support of campaign and/or operational objectives, the JFC makes his apportionment decision. The decision considers JFACC recommendations, ACC capabilities and requirements, and JFLCC combat air requirements. Following the JFC apportionment decision, the JFACC translates the apportionment decision into allocation of sorties. The allocation provides a set number of CAS sorties to support the JFLCC throughout his AO. AI sorties support the JFACC throughout the theater, including the JFLCC AO. CAS allocation and AI sorties within the JFLCC AO can be projected overtime (days) to support JFLCC future operations planning.

BATTLEFIELD COORDINATION ELEMENT

The organization that provides the interface between the ARFOR commander and the JFACC (or MCC perfoming as JFACC) is the BCE. In a multicorps environment each corps provides an LO to the BCE. In a single corps environment, the BCE is assigned to the corps headquarters and collocated with the JFACC AOC. The AOC is normally the JFACC's command post. It will often be designated the JAOC. The AOC is the operational facility in which the JFACC has centralized planning directing, and controlling tactical resources. The BCE can be tailored to support the requirements of a contingency force headquarters. If appropriate, a Marine LO, a NALE, and a Navy surface operations liaison element will join the AOC structure. The following functions make the BCE important to planning coordinating, and executing operations between the FSCL and forward boundary.

The BCE collocates with the ACC AOC (or MCC counterpart) to perform the following functions:

- Monitor and analyze the land battle for the AOC.
- Provide the interface for exchange of current intelligence and operational data and support requirements.
- Coordinate and integrate JFLCC requirements for ACM, FSCM and tactical airlift.

The BCE can establish an automatic data processing (ADP) interface from its standard theater Army command and control system (STACCS) terminal (if available) to both the AOC contingency tactical air control system (TACS) automated processing system (CTAPS) terminal and the Army force STACCS terminals.

The JFLCC plans and synchronizes fires throughout his AO by using the *topdown planning, bottom-up refinement* methodology. This process--

- Correlates all facts and assumptions regarding the JFLCC mission and AO.
- Analyzes the impact of the facts and assumptions on the suitability, feasibility, and acceptability of potential courses of action.
- Identifies supporting tasks and the timing for accomplishing the tasks.

JFLCC staff products include the following:

- Identification of JFLCC HPTs in priority.
- Target acquisition requirements via the intelligence collection plan.
- Target attack guidance.
- BDA requirements.

These are produced for each phase or critical event of the JFLCC operation plan. During scheduled Staff meetings, they are updated as required.

Planned targets beyond the FSCL which the JFLCC has the capability to acquire and attack must be sent to the AOC combat plans division via the BCE plans section. This keeps the AOC informed of significant ground operations in that area and minimizes duplication of effort. Planned JFLCC targets short of the FSCL must be communicated to all affected commanders.

Planned targets must be coordinated to provide positive and/or procedural control to resolve conflicts in airspace use in the JFLCC AO. Often, details of ACM such as exact grid locations of targets or firing positions cannot be projected accurately. JFACC and JFLCC planners should provide for flexibility. Details of positive and procedural controls may be refined and coordinated in a reasonable time frame before attack. The use of ATACMS to provide SEAD protection during a JAAT provides one of many possible examples.

A JAAT mission entails a series of interdependent actions, one of which is SEAD support for aircraft during both ingress and egress. SEAD maybe provided by both JFACC package design and JFLCC lethal and nonlethal systems. SEAD targets along flight routes may or may not be known. Also, the trigger event to initiate the JAAT may depend on a specific enemy action. Thus, planners must allow flexibility for timing of the SEAD strikes and locations of previously unknown SEAD targets.

For known SEAD targets, an ATACMS attack window can be established on the basis of expected time of attack and/or liftoff of aircraft. Also, to reduce risk to aircraft, a restricted operations zone (ROZ) (an air coordination measure) may be established around the firing point and target grid. The effective time for the ROZ correlates to the ATACMS launch window. This information must be provided to the AOC via the BCE. The AOC will ensure the appropriate AWACS or ABCCC is aware of the planned mission. When the trigger event is observed, the JFLCC notifies the BCE and/or AOC that the JAAT is being initiated a specified time. Normally, control is accomplished by the following:

- Corps ASOC.
- Associated FACs and ABCCC.
- Attack helicopter air mission commander.
- Corps deep operations coordination center.

SEAD targets of opportunity will occur during aircraft ingress and egress. Direct and immediate threats to the aircraft must be countered by the aircraft. SEAD targets which do not pose an immediate threat, such as a radar system which radiates, may be countered as directed by the ASOC or ABCCC or by ATACMS. If planners recognize this possibility, time for required coordination during execution can be minimized. ATACMS firing units may be earmarked to provide support against targets of opportunity. The ATACMS firing positions should be identified in advance. The GLO on board the ABCCC must be aware of the plan and the contingency provisions. When the SEAD target of opportunity is acquired, the ABCCC or ASOC should make the decision to counter with available air or to use the ATACMS earmarked for the on-call mission. If ATACMS is selected, then at the same time the launcher-to-target line is determined. Aircraft are warned (on the basis of ATACMS trajectory considerations) by using JFACC-developed procedures. The ATACMS firing unit is directed to occupy firing positions and given a firing window (or at my command). When conditions are met, the ABCCC can pass clearance to fire to the ASOC and corps DOCC.

JFLCC-approved planned targets for which ACC support is necessary are sent by the JFLCC staff to the ACC via the BCE plans section. It is possible that the JFACC AOC may be planning attacks in the JFLCC AO that support both the JFC targeting guidance and the JFLCC targeting objectives. Placement of the FSCL and the BCE to AOC relationship both impact on JFACC integration of JFLCC-specific target nominations.

JFACC does not focus on interdiction targets short of the FSCL because of the strict coordination requirements for positive and procedural control in this area. The JFACC does plan other missions short of the FSCL, but the targets are typically requested by the ground commander. Therefore, the greater the distance between the FSCL and the FLOT, the greater the burden on the establishing commander for planning coordinating, and executing attacks short of the FSCL. A distant FSCL may overload ground staff capabilities and TACS ability to monitor or execute positive and procedural controls.

JFLCC targets are nominated in priority sequence with the following information:

- Description.
- Location (projected for mobile targets).
- Time window for attack (to ensure synchronization and synergy with JFLCC ground operations).
- Desired effects.

The BCE coordinates with the AOC to minimize duplication and ensure JFLCC nominations which are already being planned by the AOC reflect JFLCC timing and do not conflict with land operations. JFLCC requests already planned by the AOC are identified by the BCE. The remaining nominations are cross-leveled to ensure JFLCC higher priority nominations are integrated into the AOC ATO. The BCE advises the JFLCC of AOC inability to integrate requests.

The number of specific target nominations should be limited to those deemed absolutely critical to ground operations. Once the JFACC (AOC) knows the importance of the JFLCC targeting objectives and associated requirements, the AOC should not need a voluminous list of interdiction targets to provide support. In effect, this is like telling a commander what his mission is and then telling him the specifics of how it will be done. When the AOC does not know the specific HPTs which support JFLCC accomplishing mission type orders of disrupt, delay, destroy, damage, divert, or limit, then the JFLCC should provide targeting support through the BCE. This support may provide general target sets or specific target nominations. Also, the support may include an assessment of enemy capabilities for protection and movement to assist AOC planning.

The ACC plans, coordinates, and executes supporting combat air for the JFLCC. The AOC integrates JFLCC requests for air reconnaisance, airlift, and targets for CAS and AI into the overall air support scheduled in the daily ATO. The AOC must have the flexibility to design air packages to accomplish the mission while providing protection to the air crews. Situations may arise which affect the number of sorties required to acquire or attack targets (for example, air defense vulnerability, competing demands for sortie generation exceeding ACC supportability). These situations may result in JFLCC targeting requirements or priorities not being supported as requested. Conflicts affecting JFLCC CAS or AI targets must be brought to the attention of the JFLCC operations/plans staff immediately by the BCE. Conflicts which cannot be resolved at BCE or AOC level may be elevated by the commanders for adjudication by the JTCB. Daily JTCB meetings may not be timely for adjudication of time-sensitive, mission-essential targeting requirements of the JFLCC. These must be resolved by direct coordination between the JFLCC and JFACC.

Other products of the military decision-making process include control and coordination measures which address use of airspace and employment of all fires. ALOs are present in the JFLCC tactical operations center. The ALO participates in the war-gaming process to advise on Air Force concerns for use of airspace and positioning of FSCM and ACM. He is aware of the rationale for synchronization, placement of FSCM and requests for ACM. This includes initial FSCM and ACM to support the JFLCC plan and the conditions which dictate changing them to planned subsequent locations.

After approval of the action by the JFLCC, the ALO sends the information to the supporting ACC AOC. The JFLCC staff also provides the information to the appropriate BCE sections. The BCE plans and ADA/Army airspace command and control (A^2C^2) sections inform the AOC of the location of FSCM. This facilitates addition of FSCM and/or ACM to the ATO and airspace control order (ACO). It also facilitates change of FSCM and/or ACM when conditions are met which forecast the need for change.

The decision on whether to use and where to place an FSCL requires careful consideration. If used, its location is based on estimates of the situation and concept of operations. When making his estimate, the commander uses all of the following:

- Location of enemy forces.
- Anticipated rates of movement.
- Weapons capabilities.
- Tempo of the operation.
- Other factors deemed appropriate.

The FSCL is established and adjusted by the land force commanders (normally the JFLCC or corps commander) in their boundaries in consultation with superior, subordinate, supporting, and affected commanders. The FSCL is not a boundary. Synchronization of operations on either side of the FSCL is the responsibility of the establishing commander out to the limits of the land force boundary. The following are some considerations for placement of the FSCL.

The FSCL must complement the JFLCC concept for operations in depth and simultaneous attack. This can take several forms to include:

- Fires to canalize, divert, or delay enemy forces.
- Airborne or air assault operations.
- Attack helicopter operations.
- Deep ground maneuver.
- Interdiction to destroy enemy potential and/or capabilities before they can be used against friendly forces.

The depth of subordinate units' AOs is a key consideration in the placement of the FSCL. The FSCL placement in turn influences the allocation of target acquisition and fire support assets. Placing the FSCL at greater depths than subordinates can acquire and attack targets requires support from the JFLCC or other supporting commanders. Aerial platforms such as the ABCCC, JSTARS (with appropriately located ground stations), and other systems can extend the JFLCC and subordinate command ability to perform these tasks.

The JFLCC views the FSCL as a permissive FSCM which facilitates delivery of fires beyond the FSCL with minimal coordination (for example, must inform or should coordinate). This is the intent of the FSCL. However, from the ACC's perspective, the FSCL is a constraint on air strikes short of the FSCL because sorties there must be under JFLCC control to ensure clearance of fires. The JFLCC must consider this perspective. When the FSCL is positioned at greater depth, there is greater strain placed on the TACS' ability to coordinate control of air sorties short of the FSCL. This increased coordination requirement could result in delays for combat air support.

The FSCL must support operational tempo. If the JFLCC ground operations support rapid maneuver and focus on operations at extended ranges to support maneuver, then he must consider placing the FSCL at greater depth from the FLOT. He must also project the locations of subsequent FSCLs and the conditions that make them effective. This facilitates continued rapid forward movement, operations at extended ranges, and efficient change to on order FSCLs. Again, an FSCL at greater depth requires consideration of subordinate unit capabilities and allocation of resources.

The FSCL is normally placed closer to the FLOT in the defense than in the offense; exact positioning always depends on the situation. In offense or defense, key considerations are the type and scope of deep operations and the JFLCC perception of the degree of control required. This implies a suitability test for the FSCL: The more the JFLCC (or commander establishing the FSCL) requires control over operations beyond the FSCL, the less utility there is in the FSCL. Another consideration results from placing the FSCL further from the FLOT. As the distance from the FLOT to the FSCL increases, the strain on the commander's command and control capability for operations short of the FSCL increases. This applies to situations where no FSCL is employed. The impacts on the establishing commander and supporting commander must be considered.

The establishing commander must identify deep ground operations beyond the FSCL critical to his success (for example, special operations, HPT attack, deep attack helicopter operations, deep airborne and/or air assault operations). He must communicate his intent for these operations to supporting and affected commanders. He must also communicate those actions he does not want to occur (restrictions). This may be accomplished during planning meetings attended by affected commanders.

Whenever possible, restrictive fire areas (RFAs), no-fire areas (NFAs), and ACM are used to restrict fires so the FSCL can be placed to expedite fires to the maximum extent. In situations where the FSCL is at a greater depth (for example, beyond the range of cannon and rocket artillery), free-fire areas (FFAs) may be used to expedite fires short of the FSCL.

Varying capabilities for acquisition and attack may exist among adjacent commanders in a multicorps environment or coalition operations. Normally, corps commanders may establish an FSCL to support their operations. The JFLCC (US or allied) must not allow establishment of layered FSCLs (more than one FSCL layered in depth within the JFLCC AO). Layered FSCLs and multiple, separate noncontiguous corps FSCLs at varying depths create a coordination and execution problem for the supporting ACC. Whenever possible, the JFLCC should consolidate the deep operational requirements of subordinates to establish a single FSCL within the JFLCC AO. The JFLCC FSCL may be noncontiguous reflecting the varying capabilities of subordinate commands. A single JFLCC FSCL--

- Facilitates ACC support.
- Accommodates subordinate deep operations requirements.
- Eases coordination of FSCL changes across the JFLCC AO.

The change of JFLCC established FSCM and/or ACM is initiated by the JFLCC operations cell with approval of the JFLCC (or designated authority). The operations cell informs the BCE operations cell of the change and effective time. Conditions which dictate the change should be posted in the JFLCC and BCE and coordinated with the AOC. This facilitates timely change. As conditions are met, the new FSCM and/or ACM effective time can be projected and announced. The AOC advises affected sorties of the effective times and locations of the new measures. When the change is made, the operations cell confirms with the BCE operations section that the AOC has informed all TACS nodes. This ensures affected sorties are aware of new FSCM and/or ACM locations, associated control measures are being followed, and the risk of fratricide is reduced.

Normally, the ACC also serves as the joint force airspace coordination authority (ACA). ACM are nominated from JFLCC subordinate headquarters through the A^2C^2 elements. They are consolidated at JFLCC A^2C^2 and forwarded to the BCE ADA/A^2C^2 for coordination with the AOC plans and operations divisions. ACM apply to indirect fires trajectories and UAV because they are airspace users. The JFLCC A^2C^2 ensures ACM nominations support and do not conflict with ground operations before forwarding to the BCE. The ACC, as the ACA, approves formal ACM nominations within the JFLCC AO and includes them in the ACO.

Normally, ACM such as low-level transit routes (LLTR) will terminate in the vicinity of the FSCL. However, the situation may require establishing ACM beyond the FSCL to facilitate rapid change of both the FSCL and ACM. ACM should be established to facilitate deep operations between the FSCL and JFLCC forward boundary. Ground infiltration and aerial insertion and extinction of SOF or long-range surveillance teams and attack helicopter maneuver illustrate this consideration.

Changes to within the JFLCC AO are initiated by the JFLCC A^2C^2 element with JFLCC approval. The JFLCC A^2C^2 element informs the BCE ADA/A^2C^2 section of the desired change and effective time. The BCE ADA/A^2C^2 section coordinates the change with the AOC combat plans and operations divisions.

The military decision-making process is conducted as a matter of SOP during commander and staff meetings at all JFLCC echelons. Meetings are orchestrated to facilitate vertical coordination between echelons (JFLCC-corps-division) and horizontal coordination between each echelon's operations centers.

JFLCC requests for changing FSCM and ACM or request for information regarding attack of targets between the FSCL and the forward boundary is eased by joint service LOs in the JFLCCs staff. Normally, enough time is available in the JFLCC planning cycle to keep affected commanders aware of operations and changes. In any case, JFLCC requests for ACM in the JFLCC AO should not be disapproved by the ACA without justification and coordination. This coordination maybe done through the BCE.

During coalition operations, planners must not assume that the coalition force decision-making process is similar to that of US forces. Some differences that may exist are as follows:

- Degree of centralized control of decision making.
- Considerations made during the war-gaming process.
- Values associated with application of force.
- Staff training.
- Command, control, communication, and intelligence (C^3I) capability.
- Organization and procedures.

Furthermore, the JFC and/or JFLCC may be provided by a coalition force headquarters with US forces subordinate to or in support of the JFC or JFLCC. Identify the differences through liaison, and establish appropriate measures to improve interoperability. Ensure coalition liaison is integrated effectively into the US military decision-making process. For a more detailed discussion of the BCE, see Appendix I.

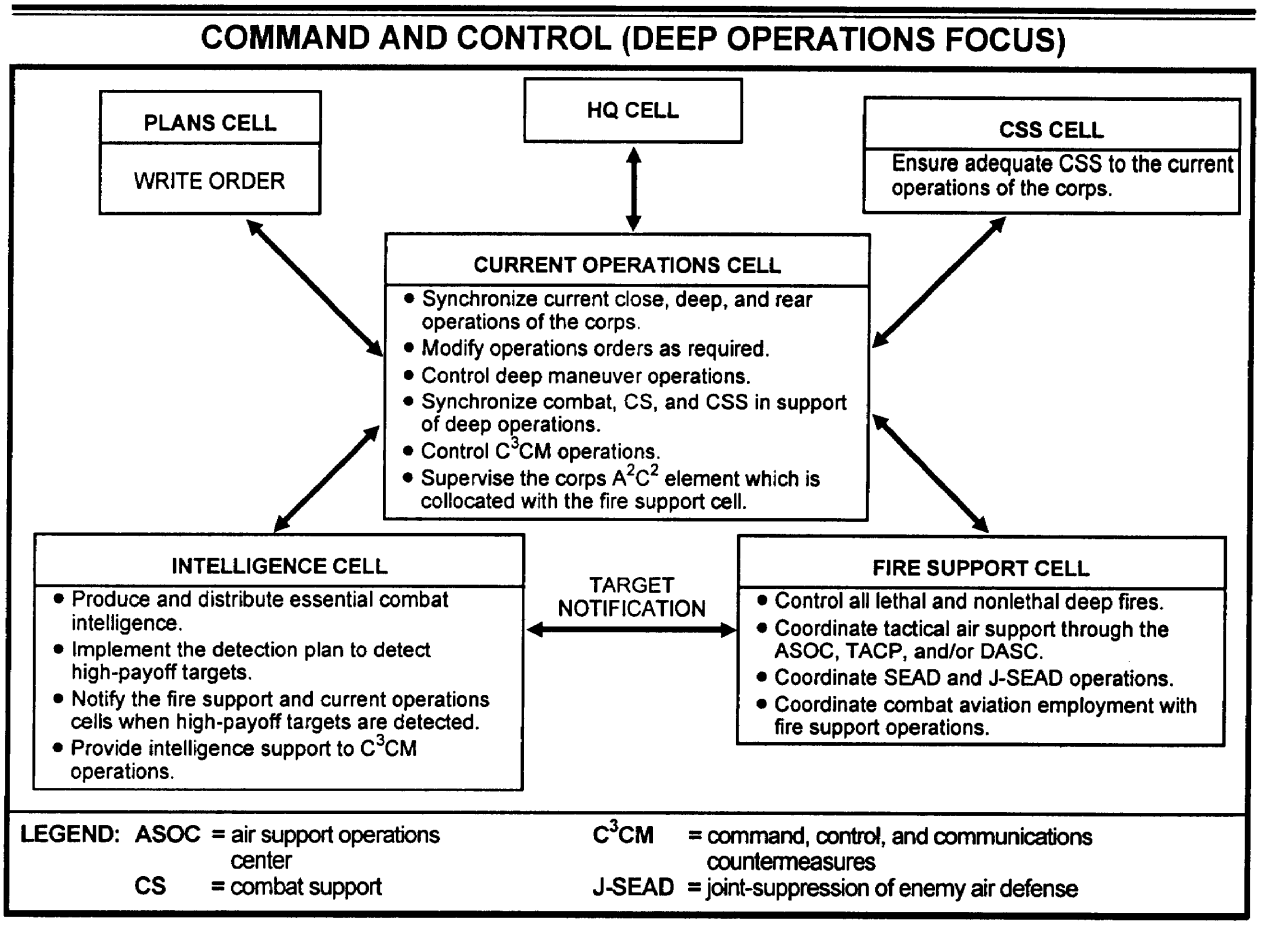
EXECUTION OF OPERATIONS BETWEEN THE FSCL AND FORWARD BOUNDARY

Coordination of attacks beyond the FSCL is especially critical to commanders of air, land, and SOF. Their forces may now be operating beyond an FSCL or may plan to maneuver on that territory in the future. Such coordination is also important when attacking forces are employing wide area munitions or munitions with delayed effects. Finally, this coordination helps avoid conflicting or redundant attack operations. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide or waste limited resources. The Army command and control node primarily responsible for controlling current operations between the FSCL and forward boundary is the TOC. The TOC is often referred to as the main command post.

The TOC plans cell develops operations plans. When execution is ordered, the tactical command post has primary responsibility to control current close operations. At US Army corps and army level, the G3 current operations cell in the TOC is responsible for monitoring and synchronizing the following:

- Support to current (close, deep, rear) operations.
- Deep maneuver operations.
- Combat, combat support, and combat service support of deep operations.
- Current operations situation.

(The figure on the next page illustrates this concept.)



With liaison, the current operations cell monitors the status of SOF operations. It maintains the current tactical information picture. Thus, agencies requiring information on the FLOT or friendly positions and activities forward of the FLOT should consult the TOC current operations cell. Current operations should periodically provide this information to higher, adjacent, and supporting headquarters.

When approved by the commander, current operations can direct coordinated changes to boundaries and control measures, ensuring all affected headquarters are informed.

Current operations obtains clearance of fires information and provides it to the fire support cell for deep fires. Current operations, as necessary, is supported by or coordinates with the following:

- Fighter liaison officer (FLO).
- Corps ALO.
- Elements of the ASOC.
- A^2C^2 element.

It also coordinates current operations as required with the BCE operations section. Current operations works closely with the intelligence, fire support, and combat service support cells. More details on these cells are in FM 100-15.

Major functions of the fire support cell include the following:

- Ensuring adequate fire support to current operations.
- Controlling all lethal and nonlethal JFLCC deep fires.
- Controlling counterfires if not managed by subordinate units.
- Coordinating of current combat air requests through the ASOC, TACP, or USMC direct air support center (DASC).
- Coordinating JFLCC SEAD and/or J-SEAD operations.
- Coordinating fire support combat aviation employment.

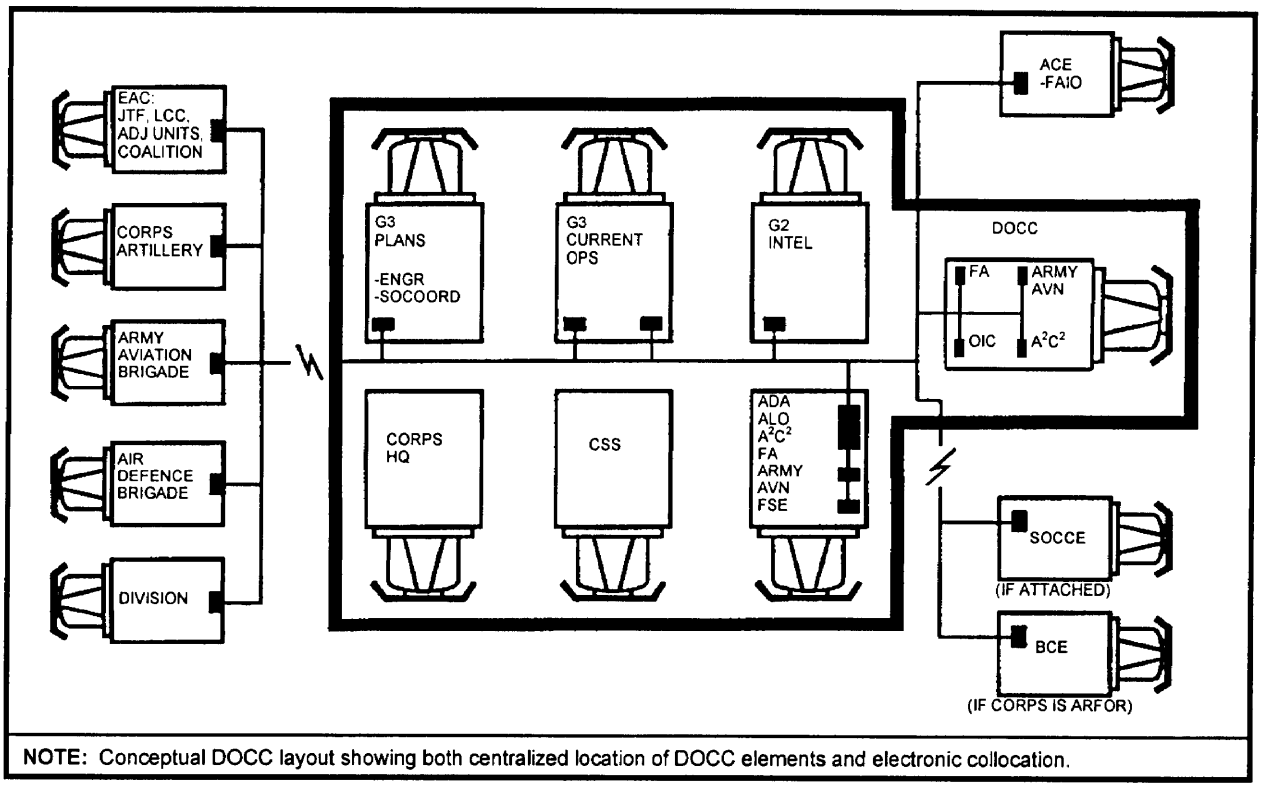
The fire support cell monitors and coordinates execution of all JFLCC deep fires as part of the delivery function of deep targeting. It coordinates the JFLCC use of airspace with the corps A^2C^2 element which is collocated with the fire support cell. It also coordinates combat air requests through the ASOC and/or TACP. The fire support cell knows the status of available fire support systems and is the point of contact for agencies requesting fire support for both current and future operations. This information should be periodically provided to higher, adjacent, and supporting headquarters. Coordination of current fire support matters with the BCE operations section is conducted through the current operations cell. These deep operations funtions of the six primary TOC cells may be centralized in a deep operations coordination cell (DOCC). The DOCC is a collocation of selected staff members from the six TOC cells. They are either physically or electronically under the supervision of a designated DOCC officer in charge (OIC). The DOCC is formed to more efficiently plan, coordinate, and execute critical deep operations. The DOCC is not a separate structure whose activities may be in conflict with activities of the six primary TOC cells. DOCC members provide the essential coordination interface with their parent TOC cells. DOCC responsibilities reflect the deep operations responsibilities of their parent cell.

- The entire staff participates in the military decision-making process and supporting command estimate process. These result in the commander's approval of critical operations, including those deep operations which become the focus of the DOCC. The commander identifies the HPTs associated with deep operations and the resources available and directs the DOCC OIC to develop the detailed plan.
- The DOCC OIC is designated by the commander, but is typically the chief of staff or FSCOORD. The DOCC OIC is given the requisite coordinating authority to plan and coordinate deep operations and, with command approval, execution authority through operational control of designated assets.
- In units with available personnel and equipment and when the TOC is in massed configuration, the DOCC may be established in a separate vehicle(s) as another cell. The member's workstations are connected by a local area network (LAN). In units with limited personnel or equipment or when the TOC is organized in dispersed configuration, the DOCC members remain with their parent TOC cells. As discussed previously, they are linked by using a LAN to reduce life support communication, and security requirements. (The two figures on the next page illustrate the concepts.)
- The automated deep operations coordination system (ADOCS) provides internal automation terminals for use by DOCC members on the deep operations LAN. DOCC's interface with higher and subordinate headquarters is accomplished through standard command channels and communication nets. The DOCC is not a separate command and control node with which external agencies must establish communications or liaison. DOCC members may coordinate with or exchange information with external agencies in accordance with (IAW) unit SOP.

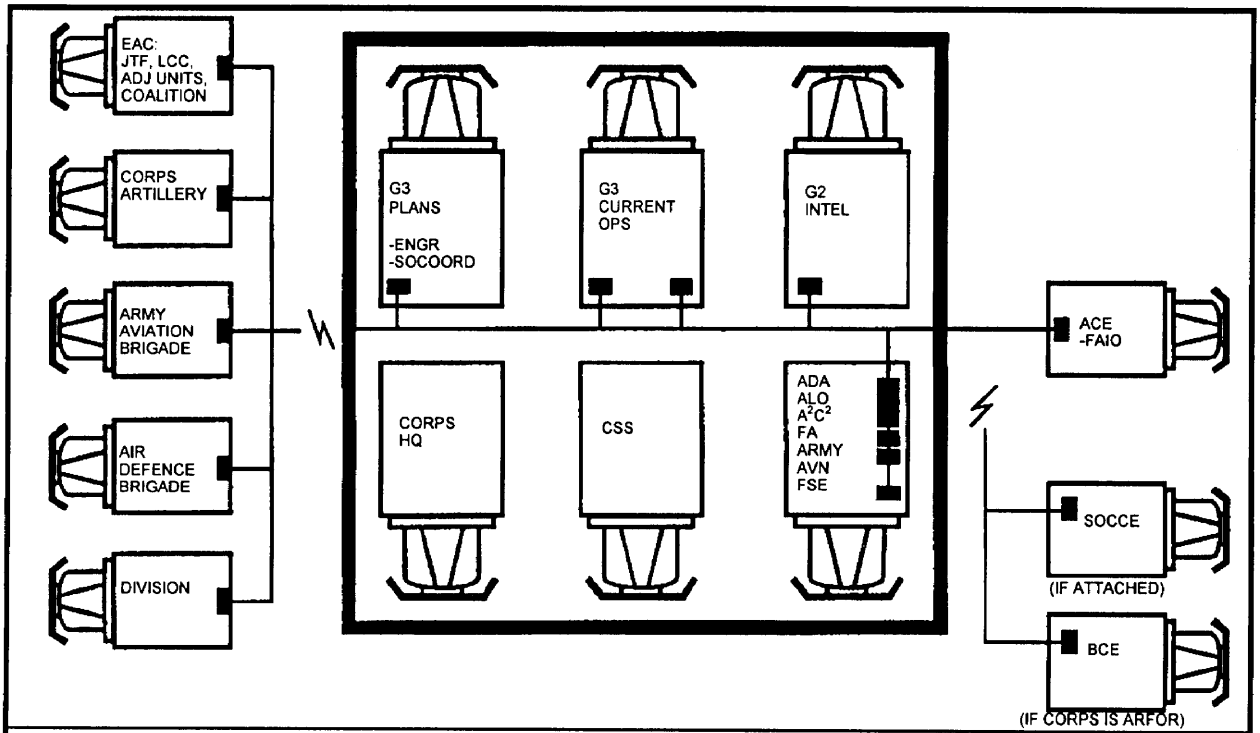
The DOCC provides a focused, centralized activity for planning and coordination of all JFLCC deep operations. When the division and corps headquarters act as the JFLCC, the DOCC integrates deep operations with joint agencies to provide near real time information exchange and expedite command and control. The DOCC centralizes the functions of the current operations, intelligence, and fire support cells in the TOC for the purpose of executing JFLCC deep operations in a timely manner. The DOCC does not replace the functions of other cells. DOCC personnel must work closely with other cells during planning, coordination, and execution of operations.

The DOCC may consist of members of the following sections or staff elements:

- Targeting team.
- FSE.
- Intelligence cell.
- A^2C^2 element.
- G3 air.
- Electronic warfare.
- ALO.
- Army aviation.
- NALE.
- SOCCE.



NOTE: Conceptual DOCC layout showing both centralized location of DOCC elements and electronic collocation.



NOTE: Conceptual DOCC layout showing collocation of key DOCC staff via local area network. OIC is located wherever desired.

The DOCC is supported by other TOC elements including plans cell, engineer, air defense, and logistics elements.

The DOCC is supervised by an officer knowledgeable of fire support systems; experienced in planning coordinating and executing fire support for maneuver forces; and of sufficient rank to exercise coordinating authority with supporting agencies. The supervisor–

- Oversees planning, coordination, and execution of JFLCC deep operations and serves as the chair person for targeting team meetings.
- Provides recommendations for the commander's concept of fires, targeting guidance, and objectives. Recommends the HPTL and attack guidance developed during the planning cycle.
- Coordinates the use of deep attack assets by division, corps, or Army retained to include maneuver, ATACMS, attack helicopters, SOF, EW, and other attached or available assets.
- Publishes the deep operations annex of the OPORD or OPLAN in coordination with the G3.
- May represent the JFLCC at JFC or JFACC meetings as desired.
- Monitors interface with and support from the BCE. Coordinates with the BCE chief as necessary.

The DOCC configuration varies depending on TOC manning levels and equipment authorizations. Current DOCCs have limited and varying automated support capability. Manual procedures are used until automated support becomes available. Automation will eventually link the DOCC to the TOC and externally to supporting agencies and adjacent and subordinate units. ADOCS is under development to support Army automation requirements.

Automation support links may vary between commands as different contract support is used to develop them. The links may be composed of hardware and software of the following:

- STACCS.
- TMDA.
- Maneuver control system (MCS).
- The all-source analysis system (ASAS) for which the intelligence community is the proponent.
- Field Artillery advanced field artillery tactical data system (AFATDS)

In addition, the DOCC automation has connectivity with the following:

- Air Force CTAPS.
- Naval tactical command system afloat (NTCS-A).
- Marine advanced tactical air control center (ATACC).

ADOCS provides interface between AFATDS, MCS, ASAS, CTAPS, NTCS-A, and ATACC.

The voice communications needs of the DOCC are met by collocation of elements and use of the mobile subscriber equipment (MSE) system. Data and written communications requirements are met by the ADOCS.

At corps and above, targeting organizations may have the mission to conduct deep attack as a component of Army theater missile defense (TMD). These operations would be a preemptive strike designed and executed to prevent the launch of enemy ballistic missiles. When the commander desires, an Army theater ballistic missile defense element (ATMDE) will be established at the appropriate echelon and linked to a targeting element. The ATMDE may be positioned at the theater level or at the corps if it is organized as a joint TF.

As an example, artillery organizations may have the following responsibilities:

- Attacks against theater missile launchers and support facilities within range of ATACMS.
- Counter-RISTA fires targeting ARK-5s.
- Counterfire against enemy short-range ballistic missiles (SRBMs).

The ATMDE element requires links to targeting elements to provide rapid engagement of short duration strategic or operational ballistic missiles.

Linkage to the ATMDE must be planned for and executed. One asset this linkage provides to artillery targeting cells is the joint tactical ground station (JTAGS). JTAGS will provide direct down-linked data from the defense support program (DSP) sensors. JTAGS disseminates warming, alerting, and cuing information on TBMs. JTAGS will provide near real-time information on tactical ballistic missiles (TBMs) launched and TEL locations which would then be nominated as targets.

ATTACK OF JFLCC PLANNED OPERATIONS DEEP TARGETS BETWEEN THE FSCL AND FORWARD BOUNDARY

This section assumes that planned deep targets have been identified on the HPTL and decisions made either to task internally for acquisition and attack or to request external support. Each echelon of command is aware of the limits of their area of operations and area of interest. The division of deep operations responsibility between the JFLCC and subordinate commands is established for both acquisition and attack. Also, trigger events are identified with associated attack times or windows. The intelligence collection plan reflects internal HPT acquisition taskings. The G2 is aware of associated approved reconnaissance support requests. The ACE is monitoring reports for HPT information and trigger events. G3 current operations and the fire support cell are aware of the attack guidance. Specific units are tasked to engage HPTs at projected times and/or windows. Current operations and the fire support cell are aware of approved requests for combat air support. They are monitoring employment of combat air assets through the ASOC, BCE, and appropriate ALOs. Finally, all appropriate sensor-to-shooter links are established, whether centralized or decentralized. All these conditions can be more easily monitored by an automated DOCC. For this section, the term *DOCC* is used to designate the centralized functions of intelligence, operations, and fires to support synchronization of maneuver, fire support, and interdiction between the FSCL and forward boundary.

If operations are proceeding as planned, then acquisition and attack of targets are executed without further coordination. Designated or alternate acquisition systems acquire the HPT or associated trigger event. After targets are acquired, they must be tracked until attacked or handed off to another acquisition or tracking system. This facilitates target validation before initiating attack. Normally, target validation for planned combat air should be accomplished 4 hours before the designated attack time or window. (This should be an SOP item established on the basis of C^3I capabilities. Systems operators pass acquisition information either directly to the designated system (as directed in the coordinating instructions of the order) or to the ACE for further correlation and dissemination to the systems. Attack systems managers monitor the call for fires and ensure planned fires are still clear. After attack, the G2 initiates planned actions for developing BDA information on selected targets and CA on the enemy.

If planned operations are not on schedule, then only two outcomes are possible. They are either proceeding better than expected (ahead of time tables; targets in projected locations at predicted times) or proceeding worse than expected.

If operations are very successful, the DOCC will suggest methods of taking advantage of potential situations of opportunity as the enemy's cohesion is disrupted. Current operations directs adjustment of timelines as appropriate to ensure movement keeps pace with higher operational tempo. Acquisition and attack systems must be in the proper place at the appropriate times. The DOCC continues to monitor and execute acquisition and attack.

If operations are proceeding worse than expected, the DOCC informs other staff cells and offers insights as to the reasons. Targets may not be in projected locations at predicted times, or friendly movement and maneuver may not be proceeding at predicted rates. Indications are that the enemy is operating at a slower or higher operating tempo (OPTEMPO) or may be pursuing a different course of action.

The current operations section coordinates modifications to the current order, including attack guidance, as appropriate. The intelligence cell modifies the intelligence collection plan as appropriate.

The DOCC coordinates with the BCE to release combat air sorties for which planned targets cannot be validated in enough time. If planned targets are not validated or are not found, sorties may be diverted by the AOC or ASOC in accordance with (in priority)--

- JFLCC targeting objectives.
- Other immediate requirements.

Diversion of combat air sorties is not a simple task. The diverted sortie package must be appropriate for the target in question, flight patterns must be cleared, and SEAD support must be modified. These points emphasize that control of diversions rests with the AOC or ASOC.

Specific targets for diversions may be recommended by the JFLCC through the BCE. However, to expedite diversions, the BCE is be authorized to coordinate directly with the AOC. The BCE tracks diversion of combat air sorties planned for JFLCC support.

Attack of Current Operations Deep Targets of Opportunity Between the FSCL and Forward Boundary

During the course of planned target acquisition and other operations in this area, acquisition of targets whose locations were not predicted is expected. If the target is an HPT, then the acquisition system passes it immediately to the shooter (if directed by the coordinating instructions of the order) or to the ACE for further analysis and dissemination. If the target is not an HPT, it is passed as order of battle information to the ACE for further analysis and dissemination as appropriate. Acquisition and attack systems should not focus on or be distracted by non-HPTs.

Depending on the depth of the FSCL, most targets of opportunity in this area will be acquired by Air Force or national systems. Depending on the sensor, acquisition information is either processed on board or sent to a processing system to determine the nature of the target. The corps ACE has intelligence terminal links to the following:

- National and Air Force associated processing systems (electronic processing and dissemination system (EPDS).
- Imagery processing and dissemination system (IPDS).
- JSTARS ground station module (GSM).

In-flight reports are another source of target information. The AOC and ASOC monitor in-flight reports and pass validated key HPT information to the ground commander via either the BCE or corps DOCC respectively.

Timely response is key to successful target attack. The BCE should have authority to coordinate directly with the AOC for attack of HPTs provided them by the AOC. The BCE is aware of the operational situation and provides information reports to the JFLCC DOCC. Similarly, the corps DOCC is aware of the tactical situation and coordinates target attack with the BCE. If the BCE directs attack of targets of opportunity in a subordinate or adjacent commander's AO, even if beyond the FSCL, then that commander must be informed.

If the HPT is acquired by national or supporting command systems (JFACC, MCC, allied) and immediate engagement is possible, the AOC may direct engagement. The AOC ensures that an attack does not violate restrictions imposed by JFLCC or general direction for activities within his AO. Such an attack should not divert planned sorties en route to designated HPTs, unless this is the only timely method of attack. Diversion requires coordination with the BCE, the affected commander, and replacement of the lost sorties equal to the commander's synchronization requirements if possible. Exigent circumstances in which this coordination would not be required is the absolute criticality of the target (for example, NBC-capable missile in launch configuration). These exigent circumstances are situation-dependent and should be identified during joint planning. The AOC must inform the JFLCC of such attack through the BCE operations section.

Commanders must keep the BCE and DOCC informed of ground operations activities near or beyond the FSCL. While it is desirable to coordinate attack of such targets, their attack will not be delayed to perform coordination.

CHAPTER 4
CORPS AND DIVISION TARGETING

Targeting at corps and division level is primarily at the tactical level of war. It involves commanders and staffs in the decide, detect, deliver, and assess functions in support of tactical operations. A corps commander might also command a joint force land component or a JTF. As a JTF commander, he might plan and execute a campaign with objectives associated with the operational level of war.

REQUIREMENTS FOR SUCCESSFUL TARGETING

Targeting is done throughout the current and anticipated areas of interest. The operational success of the corps and/or division battle depends on–

- The commander's battle plan.
- The timeliness and accuracy of intelligence from national, theater, corps, and division assets.
- The speed with which the corps or division creates and exploits its tactical and operational advantages.
- The ability of the staff to synchronize a multiservice targeting effort.

The corps targeting team is a planner and an executor of the targeting process. It has the assets needed to see, plan, and execute deep targeting while synchronizing targeting in support of close and rear operations. Corps is normally the first echelon where other service components provide significant fire support assets beyond field artillery and other Army systems. To engage the enemy, it involves the coordinated use of all of the following:

- Intelligence.
- Surface-to-surface rocket and missile artillery.
- Army aviation.
- Air Force.
- SOF.
- Navy and Marine Corps assets.

To look deep into the battlefield, the corps has collection assets in the organic military intelligence (MI) brigade. The corps targeting team also has various systems that link it to EAC and national collection and attack systems. To plan targeting, the corps main CP has the command, control, communications, computers, and intelligence (C^4I) elements to synchronize the overall battle, to include deep targeting. To execute the targeting process, the fire support cell has links to all of the following:

- Field artillery units.
- Army attack aviation.
- SOF.
- EW.
- Air Force.
- Naval assets.

With these links, the fire support cell can aggressively attack the commander's HPTs.

The corps and divisions fight combined arms battles and engagements by employing every tactical means available. The commander integrates and coordinates different kinds of maneuver battalions and lethal and nonlethal support to accomplish division missions. The division executes close operations and at the same time conducts deep and rear operations. This is the highest echelon where cannon and rocket artillery provide the majority of the fire support systems. It is also the lowest to plan extensively on the use of air platforms, both fixed- and rotary-winged.

FUNCTIONS

The targeting functions at caps and division are as follows:

- Synchronize close, deep, and rear area targeting.
- Provide input to the G3 DST.
- Perform TVA to develop HVTs.
- Identify HPTs and produce HPTLs for each phase or critical event.
- Develop TSSs.

- Identify requirements for detection of HPTs, and include them in the collection plan.
- Nominate targets for attack.
- Allocate acquisition and attack assets.
- Request assistance from higher headquarters.
- Recommend and determine attack guidance (within established ROE).
- Coordinate and direct lethal and/or nonlethal attack of approved targets.
- Identify requirements for CA.
- Execute the collection plan.
- Receive and evaluate BDA.
- Recommend changes to the OPORD.

PLANNING CONSIDERATIONS

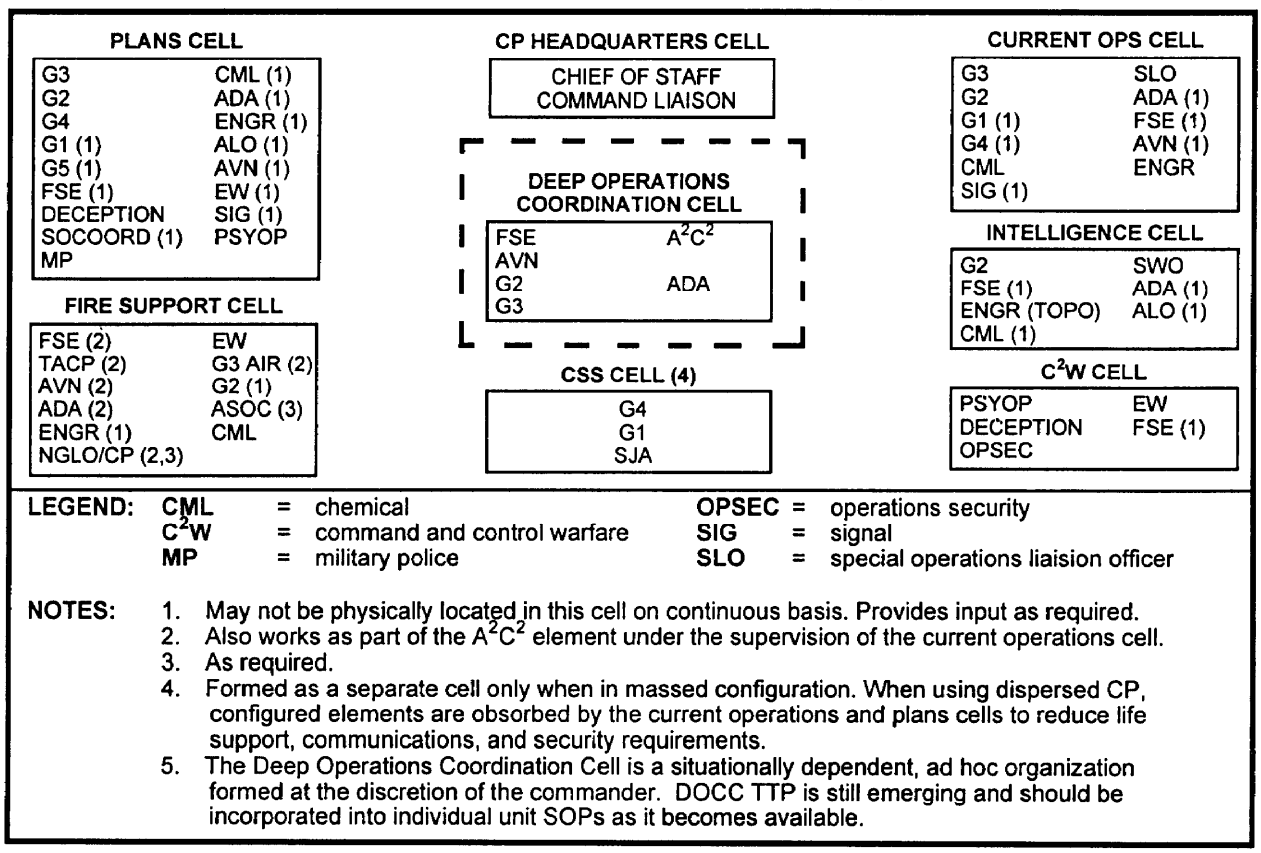
The operating environment and targeting capabilities influence the decide, detect, deliver, and assess functions. Planning is different for a conventional war against a sophisticated enemy, requiring interdiction of operational targets, than that for OOTW against a guerrilla force where targets are difficult to locate. With evolving security threats, each corps and division staff is concerned with several contingency plans. HVTs and HPTs are developed for plans that are regional and for which adequate intelligence is available. Also, for planning purposes, each contingency has an associated list of forces that contains listings of available nonorganic collection and delivery assets.

TARGETING ORGANIZATION

Main Command Post

The main CP provides continuity for corps and division operations. It synchronizes the entire corps or division battle, conducts deep operations, and plans all future operations. The main CP is functionally organized to support the coordination needed to synchronize operations. The main CP is normally composed of seven functional cells as shown in the figure below. Each cell has either a full or part time representative from each of the coordinating staff sections. Most targeting responsibilities are supported by the DOCC and current operations, plans, intelligence, and fire support cells.

EXAMPLE MAIN COMMAND POST



LEGEND: CML = chemical; C^2W = command and control warfare; MP = military police; OPSEC = operations security; SIG = signal; SLO = special operations liaision officer

NOTES:
1. May not be physically located in this cell on continuous basis. Provides input as required.
2. Also works as part of the A^2C^2 element under the supervision of the current operations cell.
3. As required.
4. Formed as a separate cell only when in massed configuration. When using dispersed CP, configured elements are obsorbed by the current operations and plans cells to reduce life support, communications, and security requirements.
5. The Deep Operations Coordination Cell is a situationally dependent, ad hoc organization formed at the discretion of the commander. DOCC TTP is still emerging and should be incorporated into individual unit SOPs as it becomes available.

Current Operations Cell

The current operations cell has the primary function of synchronizing current close, deep, and rear operations. The current operations cell executes the commander's attack guidance for deep targets. In addition, the cell monitors the corps close battle being fought by the corps tactical (tac) CP and subordinate divisions.

Plans Cell

The plans cell plans future operations as branches and sequels for the current operation. Determining the HPTs to be attacked in support of the mission is of major importance during this planning process. Planning also establishes the concepts for detection and attack of these targets. The plans cell is responsible for leading the staff in war gaming. The DST, collection plan, and attack guidance are developed as a result of war gaming.

Fire Support Cell

The fire support cell synchronizes all deep fires and directs the attack of targets by organic or attached fire support. This includes synchronizing fires for J-SEAD to support air and aviation operations. It coordinates the use of airspace through the A^2C^2 element. It coordinates Air Force support through the ASOC and corps or division TACP. The fire support cell coordinates support requests and taskings with the FSE in the DOCC. In some special cases, the fire support cell coordinates directly with the BCE at the AOC. The cell includes representatives from the TACP, Army aviation, AD, EW, G3 air, G2, engineer, and A^2C^2 section.

Deep Operations Coordination Cell

The DOCC is an emerging organization that can be employed on a stand-alone or ad hoc basis. It is to be located at the main CP and plans, coordinates, and synchronizes the corps or division deep operations. Making deep operations work requires the full time (24-hour) efforts of several people (FSCOORD, G3 plans, G2, and aviation). Additional assistance from other staff agencies (DFSCOORD, EWO, ADAO, ALO, G3 air, PSYOP, and ADA) are included as required. The chief of staff leads the DOCC and approves all deep operations. The DOCC has robust communication links.

The DOCC acts as the battle command and control facility, which exists to support the successful execution of deep operations. The DOCC stays abreast of the status of close and rear operations and continually assesses their relationship with deep operations criteria. Through the targeting process, targets are selected and detection assets are allocated and employed. The DOCC is responsible to confim and validate the sensor reading to determine if the original decide criteria for a target remains in place. The DOCC allocates the attack resource to engage the target. With the DOCC in place, the battle command and control process is continuous and interactive. The DOCC ensures the process is driven by the commander's intent, missions, and events.

Intelligence Cell

The intelligence cell requests, collects, and analyzes intelligence information from all sources to produce and distribute combat intelligence. It performs continuous IPB and TVA to support future operations planning and is the basis for target development. As part of the targeting process, it executes the collection plan and notifies the fire support and current operations cells when HPT are detected. It tasks the organic corps or division MI unit.

Command and Control Warfare

Command and control warfare (C^2W) is the ability to deny information to or adversely affect enemy command and control capabilities by the integrated use of all of the following:

- OPSEC.
- Military deception.
- PSYOP.
- EW.
- Physical destruction.

It is also used to protect friendly command and control against such action.

The part of C^2W designed to deny enemy commanders the ability to command and control their forces effectively is called counter-C^2. Action taken to maintain the effectiveness of friendly C^2 despite both adversary and friendly counter-C^2 actions is called C^2-protection.

COUNTER-C^2

Planning for C^2W is also based on the corps commander's concept of operations. It describes how the corps will disrupt the enemy's C^2 capability. It further describes how the commander will use the available information warfare capabilities to enhance his own operations.

Used in conjunction with OPSEC, deception can be used to feed selected information to an enemy decision maker to get him to see an incorrect picture and act upon it. Some of the specific deception goals of C^2W may be to–

- Cause the enemy to employ his forces in ways which are advantageous to us.
- Cause the enemy to reveal his strengths, dispositions, and future intentions.
- Overload the intelligence and analysis capabilities of the enemy and create confusion as to our intentions in order for us to achieve surprise.
- Cause the enemy to expend firepower on false or unprofitable targets.

PSYOP can be used against enemy command and control in such a way as to either create or reinforce perceptions. It is obvious that PSYOP is closely integrated with OPSEC and deception. All three seek to portray a picture of reality in a way that will be beneficial to what we wish to accomplish.

Electronic warfare is divided into three areas:

- Electronic attack (EA).
- Electronic warfare support (ES).
- Electronic protection (EP).

All three divisions can be used in information warfare. When we can intercept enemy communications and locate enemy transmitters, we have the potential to target his C^2 systems with fires. Another method of targeting the enemy C^2 systems is EA. For the purpose of the corps, this equates to jamming critical enemy C^2 nodes. The major mission of EP in information warfare will be to starve the enemy intelligence gatherers. Communications operators and leaders must pay close attention to communications security (COMSEC) to ensure vital information is not revealed when emitters radiate.

For the purposes of C^2W, destruction of a hostile C^2 function means that it cannot perform permanently or for a given time period. The commander's destruction intentions must be clearly communicated to the fire support element so that limited assets can cover the most targets.

It is important to remember that C^2W will be competing with other targets needing the same weapon systems.

C^2-PROTECTION

C^2-protection planning is based on the corps commander's concept of operation. The first step is to make an assessment of enemy intelligence and counter-C^2 capabilities. Next, the corps characteristics that are vulnerable to enemy intelligence and counter-C^2 actions are identified. Priority characteristics that require special protection are identified by the G3 as essential elements of friendly information (EEFI). The staff helps the G3 determine and implement OPSEC measures that eliminate or reduce vulnerabilities.

Considerations must also be given to the prevention of fratricide. Fratricide is caused by the degradation of crops C^2 capabilities by friendly actions intended to counter enemy C^2. The following are a few examples of measures that can be used to reduce the risk of fratricide:

- Allocating frequencies.
- Implementing deconfliction procedures.
- Establishing restricted frequency lists.

In C^2-protection, OPSEC measures deny targeting information to the enemy. Jamming is used to disrupt enemy communications between his sensors and fire support systems. Destruction is used in C^2-protection to attack enemy information warfare resources. Destroying enemy jammers, enemy fire direction centers, and deception units protects corps C^2 capabilities from lethal and nonlethal attack and deception operations. In turn, deception can be used to negate his targeting and surveillance assets to protect our C^2 systems.

C^2W PLANNING

C^2W planning is directed by the G3, who is assisted by several established staff elements. The OPSEC staff element develops EEFI and determines appropriate protection measures. The corps deception element helps the G3 plan and coordinate deception activities. Jamming requirements are planned, coordinated, and integrated with fires and maneuver by the EW section. The section forwards jamming missions to subordinate units and jamming requests to higher echelons. Attacks by fire are planned and coordinated by the fire support element (FSE). Preplanned requests for cross service EW, air support, and reconnaissance and surveillance are coordinated by the corps G3 and the BCE. The PSYOP support element from the PSYOP battalion coordinates corps PSYOP operations in support of the overall PSYOP campaign.

One way to ensure the unity of effort of the varied elements of C²W is through the use of a CW cell. This cell is comprised of the G3 deception, EW, and OPSEC sections combined of the PSYOP support element from the PSYOP battalion. Working together, and in concert with the FSE, the cell elements coordinate their efforts to build a synergistic C²W plan that supports the corps operation. A²C²W officer (for example, the chief of the deception element) is designated to lead the cell. Whether or not the cell reports to the G3 directly or through another cell, such as plans, is a matter of command preference.

Intelligence support for C²W is coordinated by the G2 with assistance from the ACE. The ACE is OPCON from the operations battalion of the MI brigade. It directly tasks corps MI brigade organic collection assets and attached reinforcing assets.

The corps MI brigade provides ground-based and airborne EW support through signals intelligence (SIGINT), imagery (IMINT), and human intelligence (HUMINT). It also provides links to national and theater intelligence systems. The brigade has three battalions:

- **Operations Battalion.** This battalion provides the ACE. The ACE performs IEW collection, analysis, processing, dissemination, and management functions in support of corps operations.
- **Tactical Exploitation Battalion.** The tactical exploitation battalion (TEB) provides long-range surveillance teams, CI teams, and interrogation teams to corps operations.
- **Aerial Exploitation Battalion.** The aerial exploitation battalion (AEB) allows the commander to *see* the battlefield throughout the corps area of operations and beyond. It provides a deep look aerial reconnaissance, surveillance, and SIGINT collection capability.

Divisional Ml Battalion

The divisional MI battalion is responsible for conducting EW operations within the framework of the division commander's intent. The MI battalion receives the HPTL, the AGM, the EW composite target matrix, and the collection plan from the division targeting team. The technical control element (TCE) of the MI battalion translates guidance into taskings to the division EA assets. The MI battalion conducts the EW mission and reports the results via the collection management section to the G3 electronic warfare officer (EWO). (see FM 34-l.)

The battalion provides ground-based communications intercept, direction finding (DF) capability, EA, HUMINT collection, and ground-based surveillance.

- The QUICKFIX platoon, habitually OPCON to the MI battalion, provides aerial communications intercept and DF. It operates in general support (GS) to the division and allows for greater collection range and depth.
- Long-range surveillance (LRS) teams, found in corps and light divisions, are deployed from 15 up to 80 km forward of the division FLOT to observe selected NAIs. Their insertions are time-phased to ensure continuous coverage of selected deep divisional NAIs.
- In light divisions, ground surveillance systems are frequently attached to the maneuver units to locate moving targets.

The remaining divisional assets are task-organized into MI company teams GS to the division as a whole or DS to designated brigades.

Corps and Division Artillery Units

Corps artillery and div arty CPs focus on counterfire and attack at depth. The DS and reinforcing battalions focus primarily on close support. These operations must support the combined arms commander's intent while permitting artillery commanders to mass and shift fire. Accordingly, corps artillery and div arty CPs use the appropriate HPTL, TSS, and AGM to guide operations. They use field artillery (FA) radars and other assets to answer collection plan information taskings. FA units fire missions, within their capabilities, at targets the FS cell provides through fire support channels.

TARGETING METHODOLOGY

The actions and functions of the corps and division targeting teams are essentially the same. The chief difference being the capabilities of the organic assets available for targeting. The division relies heavily upon corps and EAC assets for targeting support for its deep operations.

The commander directs the targeting effort. The process begins with the commander's guidance after the G3 and G2 present their initial mission analyses. Along with his mission statement, the commander must give his guidance on–

- What he expects the unit to do.
- What he feels are the most important targets.
- What general effects he wants to have on those targets.

The targeting process must be supervised by one individual. In the main CP, the chief of staff is responsible for supervising the targeting process and the targeting team. At corps level, the FSCOORD could be an alternative supervisor. The targeting team incorporates the mission statement the commander's intent, and the concept of the operation into the TVA process.

Once the staff has this information, the targeting team analyzes enemy COAs and identifies basic HVTs at the same time. As the staff war-games friendly COAs, the targeting team develops initial proposals on HPTs and attack guidance. (See Chapter 2 for specifics.) After the commander selects the final COA and issues further guidance, the targeting team–

- Refines and prioritizes the HPTL.
- Develops the AGM.
- Submits these products to the commander for approval.

Once approved, the HPTL and AGM form the basis for the activities of the targeting team. The G3 ensures that the intelligence, operations, plans, and FS cells incorporate these products into the OPORD and its annexes. For example, included are tasks to subordinate units, coordinating instructions, and PIR and/or IR. The G2, G3, and FSCOORD determine what additional support is required for collection and target attack. When support requirements have been determined, they submit the appropriate requests.

The targeting team provides TSS to the FS cell and FAIO by using the following:

- Timeliness.
- Target status (stationary or moving).
- Target characteristics (for example, size, accuracy, and TLE requirements for given attack systems).

The targeting team also determines the targets that require BDA. Only the most critical targets should be selected, as valuable assets must be diverted from target or situation development to perform BDA.

The G2 ensures appropriate HPTs are approved as PIR and a collection plan that focuses on answering the commander's PIR is developed. The collection management section provides targeting information to the intelligence analyst for analysis. The FAIO helps the analyst in this process. He provides his knowledge of requirements for lethal and nonlethal attack and identifies the most important and perishable targets. The FAIO and analyst inform the targeting team when major changes in the tactical situation warrant reevaluation of the HPTL. The targeting team continually assesses the current situation and future needs. At the same time, the team reevaluates the HPTL, AGM, BDA requirements, and TSS and updates them as necessary. The FAIO works closely with the collection management section as well. The FAIO helps that section translate targeting team requirements into guidance for the collection plan. He also provides expertise on FA TA systems.

The all-source analysis section and FAIO evaluate the information from the collection management section against the TSS and HPTL to determine targets or suspected targets. Targets are immediately passed to the FS cell for attack. Enemy activities that do not achieve TSS are suspected targets. Enemy activities that appear on the HPTL but categorized as suspected targets are passed to the FS cell for correlation with information available at the FS cell. This correlation may produce a valid target. Also, the FAIO should request the collection manager focus additional collection assets to further develop selected suspected targets. He coordinates with the collection manager to retrieve BDA data as acquired.

The EWO conveys his EA missions in two forms:

- The division EW composite target list for preplanned missions.
- The EW requesting and tasking message for immediate missions or for changes to current EW taskings.

(See FMs 34-1 and 34-10.) The EWO coordinates with the collection manager to eliminate any conflicts between the EA (EWO proponency) and ES measures (collection manager proponency). He does this before the TCE receives the collection plan and the division EW composite target list. The limited number of IEW assets causes conflicts to occur between the collection plan and the division EW composite target list. The TCE, through the G2, notifies the EWO of the conflict. If the conflict cannot be resolved at the manager level, the G3 deconflicts the tasking.

The FS cell receives most target nominations from the FAIO. Once a target is received, the FS cell analyzes it in terms of TSS and the AGM, prioritizes it, and determines an appropriate attack method. The FS cell may consult with other agencies to facilitate target engagement. This is especially necessary when attack system availability, ROE, or other considerations determine the method of attack. Coordinated attacks or any combination of lethal and nonlethal attack means

also necessitates temporary augmentation of the FS cell. The FS cell directs the selected attack unit to engage the target and provide BDA data through the G3 or representative of the unit at the division TOC. The all-source analysis section and FAIO analyze BDA data for selected targets to evaluate the effiveness of the attack. However, the targeting team determines whether the commander's attack guidance has been achieved or further fires are necessary.

Targets and missions beyond the capability of the corps or division to properly service with their assets are passed to higher headquarters for action. The staff must know when the requests must be submitted for consideration within the requested echelon target planning cycle. The synchronization of these missions with ongoing operations may be critical to the success of the unit mission. Close coordination between supported and supporting components is required to ensure vertical integration and synchronization of plans. A key to coordination for both planning and execution is the use of LOs at all headquarters.

During this process, the commander, chief ofstaff, G2, G3, Army aviation commander, and FSCOORD exert considerable influence. Targeting is a process that involves the entire staff. Leaders must keep the targeting effort focused so that the targeting cells devote their fullest efforts to the process.

The targeting process is a continuous and cyclical effort. Phases occur at the same time when executing current operations and planning future operations. The phases are sequential in the context of any given planning cycle. Recurring events and their associated products are best managed through workable SOPs. SOPs must be tailored to the unit's structure and operating environment to ensure a cohesive, coordinated targeting effort. A sample SOP for a targeting team at corps or division level is at Appendix J.

CORPS AND DIVISION SYNCHRONIZATION

The focus at the corps level is on deep tactical and operational targets. These targets must be engaged to shape the battlefield for the close battle at division level and below. The corps deep assets must be integrated and synchronized with joint force systems. At the same time, the corps commander must support the detect and deliver requirements of subordinate units. Corps and perhaps division HFTs are located throughout the depth of the battlefield. Corps and division commanders set the targeting priorities, timing, and effects consistent with the higher commander's guidance. Mission analysis and plan development establish what conditions must be achieved for success. The mission analysis determines the combat activities, sequence of activities, and application of resources that will achieve the conditions for success. While all his conditions may not be met, the commander is responsible for the coordination and synchronization of supporting service and joint assets in his AOR.

The corps ensures subordinate divisions and separate units understand the corps mission and concept of operations. Each division plan supports the corps commander's intent and guidance. The corps deep battle establishes the conditions for the divisions to successfully fight the corps commander's close battle. This understanding between corps and division means that each command supports the other. Missions and targets may be passed from corps to divisions as the more appropriate executor. The divisions may also have missions and targets that are beyond their capabilities that require the corps to provide support. This is important considering the limited range of division assets to detect and attack targets. The corps may coordinate attack of crops HPTs in a division area; similarly, the division may ask the corps to acquire division HPTs that are beyond the capability of the division. This mutual support must be coordinated and synchronized during the decide phase of the planning process. Synchronization includes all of the following:

- Coordinating the acquisition, tracking and reporting of targets of concern at either or both echelons.
- Vertical exchange of target information.
- Attack of targets outside the AOR of an echelon.*
- Target engagement criteria.
- Allocation of assets.
- Establishment of communications links between sensor systems, decision makers, and attack systems.

* An example is the acquisition of a corps HPT by division assets that is reported to corps and attacked by corps assets.

The corps and division FSEs and subordinate unit LOs play key roles in the synchronization process.

TARGETING IN SUPPORT OF REAR OPERATIONS

Rear operations helps provide freedom of action and continuity of operations, logistics, and battle command. Their primary purposes are to sustain the current close and deep fights and to posture the force for future operations. Rear operations can become the target of the enemy's deep attack. Commanders train and equip units involved in rear operations to protect themselves against all but the most serious threats. If the rear elements cannot protect themselves, assets needed for the close battle must be used.

Soldiers and leaders at all levels must remain alert to threats to rear areas. They must be psychologically prepared to deal with them. Protective actions in the rear can be active and passive. Contingency plans can also identify combat forces to respond to rear area threats. Commanders continually reevaluate the possibility of serious threats to rear operations and devise measures to meet them with minimum assets.

Threats to Rear Operations

Most elements in rear areas are not trained or resourced to conduct sustained defensive operations against larger forces. Requirements to conduct sustained combat operations in rear areas will disrupt vital support fictions and permit threat forces to accomplish their goal. Nevertheless, bases and units in the rear area must be able to provide for their own short-term self-defense. The rear area may contain small defensive forces specifically organized to defeat threats beyond the capability of local defense forces. They may also maintain a limited capability to detect, delay, and disrupt larger forces until the arrival of friendly combat forces.

Threats to the rear area cover a wide spectrum from terrorism to attacks by large, sophisticated enemy forces. Rear area installations may be targeted by indigenous elements capable of unconventional operations like crime, sabotage, terrorism, and large-scale raids.

Levels of Response

Threats to rear operations are categorized by the levels of defense required to counter them. Each level, or all levels simultaneously, may occur in the rear area. Emphasis on specific defense and security measures may depend on the anticipated threat level. The threat levels which follow are also discussed in detail in Joint Pub 3-10.

Level I threats can be defeated by base or base cluster self-defense measures.

Level II threats are beyond base or base cluster self-defense capabilities but can be defeated by response forces, normally MP units, with supporting fires.

Level III threats necessitate the commitment of TCFs. Level III threats, in addition to significant ground attacks, include major attacks by airborne and air assault forces.

Threat levels, examples of them, and responses are provided in the table below.

An in-depth knowledge of the enemy is vital to successful rear security operations. The same emphasis on IPB that takes place in deep and close operations must also take place in the rear area. Good intelligence gives commanders the planning time needed to destroy the enemy forces before they disrupt rear operations. Commanders prioritize intelligence requirements for deep, close, and rear operations. Host-nation intelligence organizations are vital to a total collection effort.

LEVELS OF RESPONSE

THREAT LEVEL	EXAMPLES	RESPONSE
LEVEL I	agents, saboteurs, sympathizers, terrorists	unit, base, and base cluster self-defense measures
LEVEL II	small tactical units, unconventional warfare forces, guerrillas	self-defense measures and response force(s) with supporting fires
LEVEL III	large tactical force operations including airborne, heliborne, amphibious, infiltration operations , and major air operations	commitment of tactical combat force (TCF)

Rear Area IPB

At corps and division levels, the multidisciplined counterintelligence (MDCI) personnel in the rear operations cell are responsible for the rear area IPB. The MDCI personnel produce and incorporate IPB products produced by using the following:

- ACE at the main CP.
- Combat information provided by units transiting through the rear area.
- Host nation authorities.

It then produces a predictive intelligence estimate, identifying likely threat targets and intentions against critical friendly functions and facilities. For example, MDCI IPB can effectively identify those areas that will support major enemy airmobile or airborne insertions.

Commanders of base and/or base clusters, response forces, and TCFs use rear area IPB and intelligence estimates to produce target lists that include the following:

- Likely landing zones (LZs) and drop zones (DZs) near bases.
- Avenues of approach from LZs and DZs to bases.
- Man-made and natural obstacles.
- Key terrain features, such as those which permit observation posts, assembly areas, or openings in dense vegetation canopy which permit mortar fire.
- Perimeter defense targets, including final protective fires.
- Obscuration targets to facilitate movement of response forces and TCFs.

NOTE: See FM 100-15, FM 71-100, FM 90-23, Joint Pub 3-10, and Joint Pub 3-10.1 for more details on base and/or base cluster defense, response force operations, and TCF operations.

Decide, Detect, Deliver, and Assess Methodology in Rear Operations

Decide

The rear operations cell is responsible for the overall planning of rear area fire support operations. The cell collates base and base cluster target lists and response force target lists. It then coordinates the composite list with the FSCOORD and FSE at the main CP. In rear operations, CAS timing cannot be preplanned. Requests for immediate CAS, either from response forces or the TCF, are forwarded through the appropriate TACP to the ASOC. The rear operations cell coordinates rear area targets with the FSCOORD for on-call fires to help rear elements counter Level II or III attacks. The TCF coordinates with response force units through the rear operations cell regarding the exchange of all of the following:

- Intelligence information.
- Targets.
- Battle handoff procedures.
- Contingency plans for TCF operations.

The rear operations cell coordinates and assigns responsibilities to both response forces and TCF units in the rear area to preclude duplications.

The HPTL for the rear area should reflect targets associated with protection of critical friendly functions. The AGM should reflect the TCF and response force assets charged with attack responsibility. The rear area collection plan should reflect more reliance on the following:

- Rear area units.
- Host nation authorities.
- CI and EPW teams (in conjunction with the main CP).

Rear area attacks will normally be quick; therefore, the rear operations cell must establish responsive sensor-to-shooter links.

Detect

Rarely are there enough target acquisition assets to satisfy the needs of close, deep, and rear security operations. Also, TSS are more subjective due to the nature of the detection assets available in rear security operations. Most observers in the rear area are individuals who have other primary duties. They are not as proficient in target detection as fill-time observers in combat units. However, target reporting requirements are the same as those in the forward area. Usually, multiple sources must be used before targets can be confirmed. Initial detection efforts concentrate on determining the threat level (I, II, or III) so the commander can select the response. If the threat is Level II or III, detection focuses on locating targets in enough detail to be attacked effectively.

The rear operations cell is responsible for gathering and disseminating situation development and target development information. It gathers information from sources that include:

- Current operations and intelligence cells at the main CF.
- Supporting host nation and U.S. government agencies and civil affairs units.
- Movement control assets and convoys.
- Base and/or base cluster operations centers.
- Communications sites.
- Higher echelon sources.
- Medical evacuation assets.
- Defector and EPW interrogators.
- Response forces.

Response forces should be positioned to do the following:

- Interdict potential enemy incursions.
- Block enemy forces en route to key friendly facilities.
- Respond to priority facilities in the rear area.

Deliver

As a general rule, indirect fire assets are not needed against a Level I threat. These threats are usually individual or small-unit operations of limited scope and duration. They provide too fleeting a target for successful engagement. Level II or III threats have the potential force to require the commitment of larger combat forces and the use of fire support.

Army aviation and CAS may be the most responsive maneuver and fire support assets for use in the rear area. Army aviation is not only more responsive, it is probably the best system to use in a situation with a high risk of fratricide. Army aviation has *eyes-on-the-target* capability and point-target weapons systems. Indirect fire support is provided by mortars and field artillery. There are a number of factors to consider in providing fire support for rear security operations:

- Fire support organizations in rear operations cells may have to be formed on an ad hoc basis.
- Army aviation may also be used to rapidly displace towed artillery to firing positions.
- FSCMs must be in use to protect friendly units. On order boundaries, restrictive fire lines (RFLs), and NFAs are used for this function.
- When a brigade-size task force is committed for Level III threat, fire support will usually consist of a DS FA battalion.

Assess

Target BDA is usually accomplished by forces in contact and ground or air observers who can see the engagement area. Based on information they provide, the appropriate commander can determine whether the threat has been successfully engaged.

AIR-GROUND OPERATIONS AT CORPS LEVEL

Deep Attack

The attack of targets throughout the depth of the corps battlefield by air and ground systems should be simultaneous and complementary. Attack of deep targets requires a mutual understanding of joint coordinating measures between air and ground systems. Some targets beyond the FSCL are essential to future operations, others must be destroyed or neutralized to support the scheme of maneuver, while some must be captured, not destroyed to facilitate future operations. The corps commander must establish guidance, on the basis of future operations, for targets beyond the FSCL but still in his boundaries. He must ensure Air Force planners understand the importance of attacks beyond the FSCL on future operations.

Theater Air Ground System

The theater air ground system (TAGS) provides liaison elements from corps down to battalion level. The figure on the next page illustrates the Army Air-Ground System (AAGS) coordination links. (See Final Draft FM 100-103-2, 21 September 1994 for complete details.)

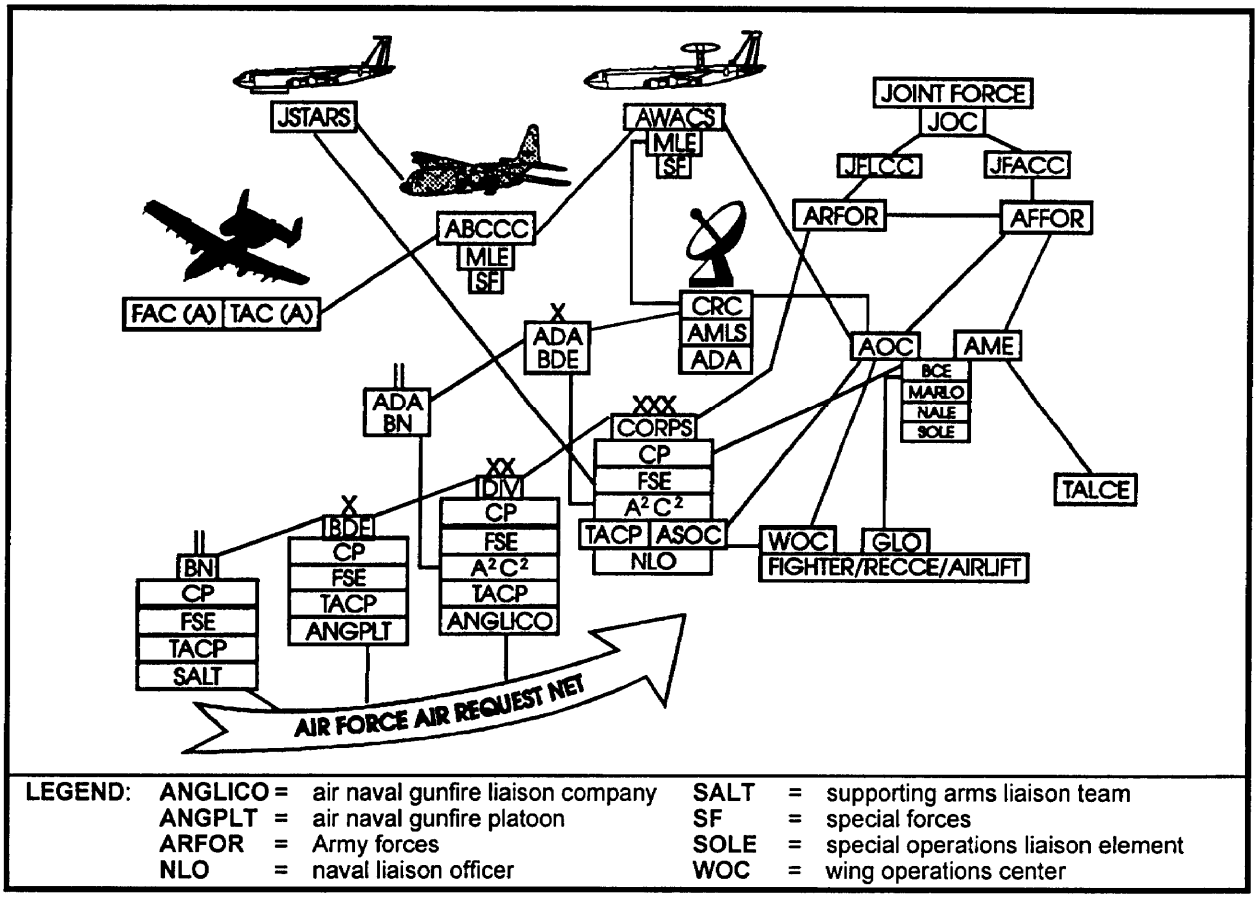
Tactical Air Control Parties

The TACPs at corps and lower levels provide advice and planning assistance on the employment of air support. The TACPs work with the fire support elements at each level. At corps and division level, the TACP consists of the following personnel:

- ALO.
- FLO.
- Tactical airlift liaison officer.
- Reconnaissance liaison officer.

The corps TACP operates the Air Force request net through which subordinate TACPs request immediate missions and informs the ASOC of air support activities.

TACTICAL AIR CONTROL PARTIES



LEGEND:	**ANGLICO**	=	air naval gunfire liaison company	**SALT**	=	supporting arms liaison team
	ANGPLT	=	air naval gunfire platoon	**SF**	=	special forces
	ARFOR	=	Army forces	**SOLE**	=	special operations liaison element
	NLO	=	naval liaison officer	**WOC**	=	wing operations center

The TACP is supervised by the ALO and performs the following functions:

- Serves as the Air Force commander's representative, providing advice to the commander on the capabilities, limitations, and employment of air support, airlift, and air reconnaissance.
- Provides a coordination interface with the respective FSE and A^2C^2 cell. Helps synchronize air and surface fires and helps prepare of the air support plan. Provides direct liaison for local AD and airspace management (ASM) activities.
- Advises and helps develop and evaluate CAS, interdiction, reconnaissance, and SEAD targets.

Air Support Operations Center

The focal point for coordinating air support at corps is the ASOC. The ASOC plans, coordinates, and directs air support and air reconnaissance operations in the corps commander's AOR. The ASOC is under the command of the corps ALO, OPCON of the AOC, and collocated with the FSE and A^2C^2 element at the corps main CP. The primary functions of the ASOC are to provide fast reaction for immediate requests for CAS and reconnaissance operations and to implement the CAS distribution decision. The ASOC performs the following:

- Processes immediate requests for CAS.
- Redistributes corps assets.
- Forwards to the AOC for approval and action those requests it cannot fill.

The ASOC is responsible for establishing and maintaining the tactical air control system at levels below the corps.

Airborne Battlefield Command and Control Center

The airborne battlefield command and control center (ABCCC) may be used as an airborne extension of the

ASOC. It provides increased range capability for command and control of air support to the corps. In this configuration, the corps provides a GLO who represents the commander. The GLO helps coordinate current air and ground operations with the ABCCC battle staff.

Air Operations Center

The AOC normally passes control of CAS missions to the ASOC. Requests for air support are coordinated by the FSE with the ASOC. Requests that cannot be satisfied with previously distributed assets are passed to the AOC. The AOC normally retains control over all AI and reconnaissance operations supporting the corps as directed by the JFC. The AOC may divert aircraft to support immediate missions.

Army Airspace Command and Control

The A^2C^2 section, under the direction of the G3 air, is the primary lead in the planning and management of airspace over the ground battle. A^2C^2 collocates with the FSE. It consists of the personnel and equipment needed to coordinate the use of airspace over the commander's AO. A^2C^2 integrates and helps synchronize all functional operations which share airspace with other friendly forces, including the following:

- Field artillery.
- Air defense.
- Army aviation.
- Special electronic mission aircraft.
- Remotely piloted vehicle operations.
- Airlift and joint forces.

TARGETING RESPONSIBILITIES

The formal structure of the elements at corps and division depend on the operating environment. Tailoring the formal structure of the staff working environment is necessary to ensure a cohesive, coordinated targeting effort. Key personnel and their targeting responsibilities are listed below.

Commander

The commander issues guidance on the concept of operation for close, deep, and rear area operations as well as for future operations. He defines the mission and the objectives of the mission, the concept of operation and his intent; assigns missions; and task-organizes. His intention and objectives guide the actions of the targeting team.

Chief of Staff

The chief of staff is responsible for supervising the targeting process and chairs targeting meetings.

(More information on targeting meetings is at Appendix J.)

FSCOORD

The FSCOORD is the primary advisor to the commander on all fire support matters. In this role he–

- Recommends the artillery organization for combat.
- Establishes and supervises the FS cell.
- Plans and synchronizes fire support.
- Prepares the fire support portion of the operation plans and orders.

Deputy or Assistant FSCOORD

The deputy or assistant FSCOORD provides the latest status of fire support resources and plans their use in support of the overall battle. Further, he finalizes the attack guidance formulated by the commander and the FSCOORD. His specific actions areas follows:

- Coordinates the functions of the targeting team.
- Recommends target priorities for acquisition and attack on the basis of TVA and war gaming.
- Recommends to the chief of staff methods of attack for targets.
- Supported by the other members of the targeting team, develops the HPTL, AGM, and BDA requirements.
- With the G2 plans/operations officer, develops timeliness and accuracy guidelines for the TSS for use by the FAIO and the FS cell.
- Assisted by the EWSO, develops targets for electronic attack.
- Monitors changes in the situation and reassess the HPTL, AGM, timeliness and accuracy guidelines of the TSS, and BDA requirements.
- Synchronizes timing of attack with the G3 and subordinate units.
- Coordinates support for subordinate units attack requirements.
- Coordinates SEAD, J-SEAD, and JAAT.

- Receives BDA and, with the G2 and G3, determines if the desired effects were achieved or if additional attacks are required.
- Ensures target nominations are validated to support the ATO in accordance with local SOPs.

G2 Officer

The G2 officer prepares the intelligence collection plan and maintains information on the current enemy situation. He provides assessments of probable enemy actions and analyzes and identifies targets on the basis of the commander's guidance. His more specific actions are as follows:

- Develops and monitors the enemy situation.
- Develops and provides IPB products to the other targeting team members.
- Passes HPTs and suspected HPTs to the FS cell.
- Develops HVTs.
- With the other members of the targeting team, develops the HPTL, AGM and BDA requirements.
- Distributes the intelligence collection plan to collection managers.
- Provides input to the FS cell on TSS.
- With the deputy FSCOORD and G3 plans/operations officer, periodically reassesses the HPTL, AGM, and BDA requirements.
- Receives BDA and, with the deputy FSCOORD, determines if desired effects were achieved or if additional attacks are required.
- Provides input for DST.

G3 Officer

The G3 officer's actions areas follows:

- With the other members of the targeting team, develops the HPTL, AGM, and BDA requirements and ensures they are integrated with the DST.
- Concentrates on future and contingency operations.
- Ensures the plans reflect the commander's concept of operation.
- With the deputy FSCOORD and G2 plans/operations officer, periodically reassesses the HPTL, AGM, and BDA requirements.
- Determines, with the deputy FSCOORD and G2 plans/operations officer, whether desired effects have been achieved or if additional attacks are required.

G3 Air

The G3 air's actions areas follows:

- Supervises the A^2C^2 element.
- Coordinates the integration of tactical airlift.

Special Operations Coordination Element (Corps level)

The elements actions are as follows:

- Forwards target nominations and missions requirements to the JFC for consideration by the JTCB.
- Coordinates JTCB taskings with the JFSOCC for feasibility assessment and execution.

FAIO

The FAIO'S actions are as follows:

- Collocates with the G2 staff particularly the collection manager and all-source analysis section
- Works within the ACE and expedites targeting information from the ACE to the FSE.
- Monitors the enemy situation and keeps the deputy FSCOORD informed. Recommends changes to priorities and attack means.
- Provides input concerning the threat, TSS, attack guidance, and list of HPT types.
- Provides information to the intelligence cell regarding accuracy requirements and timeliness of information for the fire support system.
- Ensures essentiaI target information is compared to TSS prior to passing a target to the FS cell.
- Advises the deputy FSCOORD when changes in the situation warrant reassessment of the HPTL and AGM.

Artillery Targeting Officer

The artillery targeting officer's actions are as follows:

- Develops targets and potential targets from available intelligence.
- Works with the corps G2 and FAIO to integrate FA targeting requirements with the overall corps collection plans.
- Determines FA targeting information required by the TOC and passes the requirements to the corps G2 and FAIO.
- Advises the commander on matters and status of FA target acquisition assets.
- Provides supervision to corps target acquisition detachments in the corps.
- Works with the G2 to develop and perform TVA.
- Helps develop TSS.
- Helps develop AGM products for fire support.
- Provides assistance in maintaining and updating the HPTL as situations change.

Corps and Division Targeting Officer

The corps and division targeting officer's actions are as follows:

- Deploys to the corps or division main TOC to help form the fire support cell.
- Performs duties as a targeting officer at the BCE when required.
- Recommends organization for combat for the corps target acquisition detachments (CTADs).
- Participates as a member of the targeting team at corps or division.
- Helps determine the HPTL.
- Helps determine the AGM.
- Helps determine the TSS.
- Interfaces with the FSEs in subordinate units.
- Keeps the FAIO informed on changes to the HPTL, TSS, and AGM.
- Passes targets received from the FAIO to attack systems in the most expedient manner.
- Advises and keeps informed the FSCOORD on issues concerning targeting and fire support.

G2 Plans/Operations Officer

The G2 plans/operations officer's actions are as follows:

- Maintains a current enemy situation map.
- Maintains the target data base.
- Receives combat information from the ASAS and other automation systems.
- Evaluates and analyzes combat information, with the FAIO, to identify HVTs and recommend HPTs.
- Applies the criteria for timeliness and accuracy from the TSS.
- Reports HPTs to the FAIO.
- Templates potential HVTs and/or HPTs.
- Recommends NAIs and TAIs to the G2 to support targeting.
- Coordinates with the collection manager section to ensures adequate intelligence collection to support targeting.

Assistant Division Air Defense Officer

The assistant division air defense officer's actions are as follows:

- Advises the commander and staff on the forward area air defense (FAAD) plan.
- Integrates Army airspace information from high to medimum air defense (HIMAD) and FAAD assets.
- Develops and maintains Army airspace utilization and situation.
- Requests, maintains, and disseminates A^2C^2 control measures and restrictions.
- Synchronizes friendly airspace usage with FAAD assets.
- Provides ADA PIR to intelligence collection managers.
- Nominates active forward operational bases (FOBs), FAC, and forward arming and refueling points (FARP) locations.

Air Liaison Officer

The ALO's actions areas follows:

- Commands the corps ASOC and the corps and division TACP.
- Monitors execution of the ATO.
- Advises the commander and his staff on the employment of air support assets.
- Receives, coordinates, plans, prioritizes, and synchronizes preplanned CAS requests.
- Coordinates redistribution of CAS resources.
- Coordinates approval of requests for immediate CAS and initiates ASOC execution.
- Provides Air Force input to analysis and plans.
- Receives, processes, exploits, and disseminates air intelligence.
- Provides intelligence support to electronic combat (EC).
- Provides Air Force PIR to intelligence collection managers.

Fighter Liaison Officer

The FLO's actions areas follows:

- Participates in developing targets.
- Helps evaluate targets.
- Advises the commander on suitability of targets for attack.
- Advises the commander on the best aircraft ordnance to attack the target.
- Coordinates with the FS cell for SEAD.

Aviation Officer

The AO's actions areas follows:

- Advises on employment of aviation, especially for deep operations.
- Conducts aerial reconnaissance.
- Recommends A^2C^2 measures for attack helicopter operations.

Electronic Warfare Officer

The EWO'S actions areas follows:

- Helps the deputy FSCOORD determine EW HPTs.
- Recommends EW methods of target engagement.
- Recommends EA and ES requirements that will support the commander's intent.
- Plans and coordinates the taskings and requests needed to satisfy EA and ES requirements.
- Helps the ACE in its portion of IPB, specifically the EPB.
- Recommends EW actions to support the friendly C^4I strategy.
- Prepares EW estimates and annexes and develops the EA mission tasking.
- Assesses the enemy vulnerabilities, friendly capabilities, and friendly mission.

Engineer Representative

The engineer representative's actions are as follows:

- Advises on the obstacle and/or barrier plan.
- Advises on attack of targets with scatterable mines.
- Templates potential HVTs and/or HPTs (mechanical breaching, minelayers, and so forth).
- Helps develop TPLs on DST and describes the effects of terrain on maneuver.
- War-games and synchronizes the effects of artillery scatterable mines.
- With other members of targeting team, develops HPTL, AGM, and BDA requirements.
- Recommends HPTs, NAIs, and TAIs to support the employment of artillery scatterable mines.

Psychological Operations (PSYOP) Officer

The PSYOP officer's actions are as follows:

- Selects target audiences during the target nomination process and recommends them to the chief of the targeting team.
- Coordinates PSYOP targeting with the deception officer.
- Coordinates PSYOP targeting with production and dissemination assets.

G5 or Civil Affairs Representative

The G5 or civil affairs officer's actions are as follows:

- Advises on the effects of friendly operations on the civilian populace.
- Produces input to the restricted target list.
- Coordinates CA support to the IPB and targeting process.

Division, Brigade, and Battalion LOs

The actions of these LOs are as follows:

- Address the concerns of their respective commanders. Submit and explain the significance of target nominations for deep fires and operations to support their unit operations.
- Provide feedback to their commanders on which targets are added to the HPTL and how they are synchronized with the collection plan and AGM.
- Inform their organization of higher level targets that fall in their sectors and the taskings and coordination measures involved.

G6 Signal Support Officer

The G6 signal support officer's actions are as follows:

- Manages information resources to support the commander's information requirements during targeting meetings.
- Coordinates closely with the chief of staff, G3 and other targeting team members to synchronize information systems.
- Advises on the employment of information systems.
- Prepares the signal support annex to the OPORD and OPLAN.

Other Personnel

During certain operations, personnel and agencies that will support the targeting process could include the following:

- Staff judge advocate.
- Deception officer.
- Air and naval gunfire liaison company. Army divisions and brigades coordinate Navy and Marine Corps support through an attached air and naval gunfire liaison company (ANGLICO).

CHAPTER 5
BRIGADE AND BATTALION TASK FORCE TARGETING

The brigade commander synchronizes BOS within his boundaries. He pays particular attention to maneuver and fire support to accomplish brigade missions. The focus of the targeting effort comes from–

- *The division plan and/or order.*
- *The brigade mission statement.*
- *The brigade commander's intent.*

The brigade battle is essentially the division close battle. It is shaped by targeting actions at higher levels. The brigade staff uses the targeting products of the division. Division-level taskings are integrated into the brigade targeting process. Brigade targeting addresses assets under brigade control. The HPTL and AGM at brigade and TF are normally more detailed and focused. They provide the information the sensor or observer and an attack system require to identify and attack HPTs.

Targeting at the brigade and battalion TF level is not as formal as at higher headquarters. The TF may not develop its own formal HPTL or AGM in the format presented in Chapter 2. However, the concept of the targeting process is still valid and useful at TF level. The TF uses or modifies the existing brigade HPTL, AGM, and other targeting products. At task force level the HPTL is developed through war-gaming. HPTs may be reflected on the TF DST and addressed in a synchronization matrix. The synchronization matrix should also reflect association of observers with HPTs and designation of attack systems. The synchronization matrix addressing friendly and enemy actions may be posted on operational graphics supporting the TF OPORD or OPLAN. A more formal representation of this information maybe developed in a separate HPTL, collection plan, and fire support execution matrix (FSEM). The focus of the decide function of the targeting process at TF level is to give observers critical information. They must detect targets and pass target acquisition reports to attack systems so they can deliver effective, timely fires.

FUNCTIONS

Targeting functions at brigade and TF level include the following:

- Develop the HPTL.
- Develop attack guidance.
- Establish TSS.
- Nominate targets to higher headquarters.
- Develop and synchronize the reconnaissance and surveillance plan.
- Synchronize maneuver and fire support.
- Integrate countermobility, mobility, and survivability operations.
- Receive and evaluate BDA.
- Monitor fire support systems and ammunition.
- Develop and synchronize the reconnaissance and surveillance plan with the fire support plan. (Focus on positioning observers early to support the top-down fire plan.)

PLANNING CONSIDERATIONS

The fast-paced, ever-changing nature of the battlefield at brigade and TF levels presents challenges to the targeting process, including:

- Brigade OPTEMPO affects when and where targets will be acquired.
- Targets are generally highly mobile.

- The brigade has limited assets with which to detect and attack deep targets, especially moving targets.
- Planning time is limited, and planners are also executers.
- Planning is primarily focused on current operations out to the next 36 hours.

Planning considerations at TF and brigade levels are virtually the same. Plans must be simple, but contain sufficient detail so that subordinate units can execute them with precision and vigor. Rehearsals are critical for success on the battlefield. Planning time must be allocated for rehearsals. Rehearsals clarify the fire plan for observers, sensor operators, attack system managers, and the maneuver units they support. They facilitate the synchronization of maneuver with fire support.

There is normally not enough planning time available for the brigade FSCOORD and FSO to wait for subordinate elements to forward targets for inclusion in for fire support plan. Top-down fire planning overcomes this lack of planning time. Fire support plans are disseminated to subordinate levels as early as possible and contain the following:

- Commander's intent and concept of fires.
- Targeting guidance.
- HPTL and AGM.
- Specific taskings for brigade targets.
- FSCMs for integration and synchronization with TF plans.

A fire support execution matrix is often used to disseminate this information.

The FSCOORD establishes a reasonable cutoff time for submitting routine changes to the target list before the start of combat operations. Targeting is a continuous process, and emergency and critically important changes will be accommodated anytime. However, the time for routine changes must be limited to allow time to finalize, disseminate, and rehearse the fire support plan.

Targeting functions at TF level rely heavily on the targeting products from brigade. The targeting team must understand the brigade commander's targeting guidance, to include the following:

- Criteria for attack and engagement.
- HPTs.
- Any constraints during each phase of the battle.

The targeting team must know–

- What targets are planned in the TF zone.
- What responsibilities the team has for brigade targets.
- What targeting detection and delivery assets are allocated to the TF.

For example, assets could include all of the following:

- CAS sorties.
- Combat observation/lasing teams (COLTs).
- Army aviation support.
- Priorities of fire.
- Allocation of special types of ammunition, such as family of scatterable mines (FASCAM) and dual-purpose improved conventional munitions (DPICM).

The targeting team must know the FSCMs in effect during each phase of the battle. The cutoff time for submission of changes to the target list and the brigade rehearsal time are also needed.

TARGETING ORGANIZATION AND PROCESS

The brigade and TF targeting process is a part of normal battle staff operations. The key personnel in the targeting team are as follows:

- Brigade and TF commanders.
- Brigade and TF executive officer.
- Brigade and TF S2 and S3.
- DS FA battalion commander (FSCOORD).
- Brigade FSO and DS FA battalion targeting officer.
- S3 air.
- TF FSO, fire support sergeant, and company FSO.
- Intelligence and electronic warfare support officer (IEWSO).
- DS FA battalion S3 and S2.

- Other staff representatives, including the ALO, chemical officer, ADO, engineer, NGLO when applicable, and others as required.

The responsibilities of the TF targeting team mirror those of their counterparts at brigade level. The targeting process at TF level is identical to the brigade targeting process except in terms of scale and assets available. Therefore, only the brigade targeting responsibilities and process is described below.

Brigade Commander

The brigade commander directs the targeting effort. Before preparation of formal staff estimates, he must give his guidance on the following:

- What he expects the command to do.
- What must be accomplished and when and why it must be accomplished.
- How he intends to shape the battle in terms of both time and space.
- The critical enemy vulnerability that will lead most directly to mission accomplishment.
- Places and times in the battle that are critical.
- Desired end state respecting time, force, enemy, and terrain.
- Which units have priority of fires.
- Guidance on what he thinks are the most important targets and what general effects are desired.
- BDA requirements.

With this information, the staff prepares formal estimates. After presentation of these estimates, the commander refines his previous guidance. He approves the HPTL developed by his FSO, S3, and S2, or he amends the list and approves it. HPTs that cannot be acquired or attacked with brigade assets are forwarded to the division targeting team for consideration. The FSO develops the attack guidance and submits it to the commander for approval. As the battle progresses and more information becomes available, the commander may have to change his guidance to react to changes.

Brigade S2

The brigade S2 must inform other brigade staff personnel, the DS FA S2, and task force S2s of the following:

- Target arrays.
- Enemy capabilities and projected COAs.
- The civilian situation (in the absence of an S5).
- HVTs.

To do this, the S2 leads the staff IPB, by using the tools of TVA, and applies what he knows about the enemy situation. This provides abase of HVTs that is adjusted according to current enemy dispositions and composition.

After the HPTL is approved, the S2 determines which targets can be acquired with organic, attached or assets in support of the brigade. Targets that cannot be acquired at brigade level are translated into requests for information from higher headquarters.

The brigade S2 coordinates with the DS FA S2 and targeting officer and TF S2s for the collection and distribution of targeting information. This includes production of the TSS matrix for TA assets supporting the brigade. He also plans and supervises an aggressive collection effort focused on the brigade HPTs, PIR, and IR.

The S2 must inform the other members of the staff when major changes in the tactical situation warrant reevaluation of the HPTL. After the S3 and FSO state requirements for timeliness and accuracy, the S2 must translate these into collection taskings. The S2 must work closely with the FSO and S3 to decide which targets are best suited for coordinated attack. A coordinated attack may involve a combination of a wide array of attack methods to include–

- Destructive methods.
- Electronic monitoring.
- Offensive EW.
- Deception to enhance the effectiveness of the attack.

The S2 must also advise the S3 on BDA collection capabilities.

The brigade S2 must develop a comprehensive reconnaissance and surveillance plan. The role of the reconnaissance and surveillance plan has not changed on the modern battlefield. If anything it has become even more important. The plan must tell commanders what they need to know in time for them to act. It is commander-oriented and commander-directed. The

reconnaissance and surveillance plan will answer the commander's PIR by tasking appropriate assets to gather information. It will also ensure that observers are focused on designated NAIs to facilitate the targeting effort. The brigade S2 and the FSO will coordinate indirect fires planned to support reconnaissance and surveillance assets. (For additional information, see FM 34-2-1.)

Brigade S3

The brigade S3 must work closely with the brigade S2 and FSO to prioritize the HPTL before its approval by the commander. Priorities should address the following:

- When the targets should be engaged.
- The desired effect on the target.
- Those target types that should be attacked immediately.

The decision to designate a target type for immediate attack is especially critical. To attack that target type, assets may have to be diverted from a mission in progress.

The S3 is responsible for giving a detailed interpretation of the commander's concept of the operation to all personnel engaged in brigade-level targeting. The guidance that results from this interpretation must specify the targets that the commander feels are most important and the targets that pose the greatest threat to the mission. The S3 should specify the desired effects on the target when they are different from those recommended by the FSO or S2. He should decide where or when HPTs should be attacked for the greatest benefit to the friendly operation. For those targets that are important to the brigade but that the brigade cannot engage efficiently, the S3 or FSO must coordinate with division. Although the emphasis is on HPTs, other targets of lower priority also maybe attacked.

Direct Support Artillery Battalion Commander

As the brigade FSCOORD, the commander of the DS FA advises the brigade commander as he formulates his concept. He advises and assists the brigade commander in all aspects of fire support planning, coordination, and synchronization with maneuver. The FSCOORD must be involved in the planning and orders process, briefings, and rehearsals. His development of the scheme of fire support together with the rest of the brigade battle staff is critical. The scheme of fire support includes the following:

- Movement and positioning of attack systems and observers.
- Incorporation of all available fire support (FS) assets to include mortars.
- Target prioritization, selection of volume of fire on critical targets, and sequencing of target engagement.
- Selection of where and when fires of the FA battalion and any reinforcing artillery should be massed.

The duty location of the FSCOORD at any given time is where he can best execute the brigade commander's scheme of fire support. The factors of mission, enemy, terrain, troops, and time available (METT-T) dictate his location. He may be most effective when accompanying the brigade cornrnander; however, in other circumstances, he may be better able to control available fire support in the brigade TOC.

Brigade Fire Support Officer

The brigade FSO participates in the battle staff war-gaming process to develop the HPTL and AGM. He prepares the brigade FS execution matrix and coordinates with the TF FSOs. This coordination is necessary to ensure TF plans–

- Meet the brigade commander's guidance.
- Avoid unplanned duplication.
- Use all assets assigned to the TF.
- Assign observers for all brigade targets assigned to the TF.

The brigade FSO coordinates the attack of targets by all fire support attack systems. With the brigade S2, he positions and controls brigade observation assets. He advises the commander, executive officer, and S3 on the following:

- The ability of the fire support system to defeat HPTs and other designated targets.
- The best means of attack.
- The best type of munitions to achieve the commander's desired results.

Once the HPTL is approved, the FSO ensures that fire planning and fire support requests are processed

according to the brigade commander's guidance. The FSO informs the DS FA battalion and TF FSOs of the target types designated HPTs and targets that must be processed quickly. He is responsible for developing the AGM.

Targeting Officer

The targeting officer from the DS FA battalion is employed in the brigade CP. Here, he facilitates the exchange of information between the brigade and FA battalion S2s and the FSE. This is similar to the functioning of the FAIO at higher levels. In this capacity, he helps the S2 and the FSO determine specific target vulnerabilities. He also must be able to state the enemy vulnerabilities created by loss of certain functions or capabilities. The targeting officer, in coordination with the FSO, consolidates and distributes the restricted target list. During operations, he monitors compliance with the restrictions and reports incidents where the restrictions have been violated.

The targeting officer, under the FSO's guidance, formulates the attack guidance used in the brigade and DS FA battalion CP. As the tactical situation changes, the targeting officer recommends changes to the attack guidance. To keep other targeting agencies informed, the approved brigade attack guidance is forwarded to the following:

- Div arty CP.
- Task force FSOs.
- Division FSE.

The targeting officer advises the brigade S2 on specific TLE and dwell time requirements to be considered viable for attack. He and the S2 are responsible for producing TSS for the brigade.

The targeting officer helps the brigade S2 synchronize the reconnaissance and surveillance plan with the FS plan. He also helps control TA assets organic, attached, and in support of the brigade.

Intelligence and Electronic Warfare Support Officer

The division MI battalion provides an IEWSO to the brigade to serve as the liaison with the MI unit supporting the brigade. The IEWSO, in coordination with the S2 and S3, coordinates IEW targeting taskings with the supporting MI unit and the MI battalion. He helps coordinate terrain management for the MI collection effort. The IEWSO advises on supporting assets and passes targeting information from supporting IEW elements to the S2. The IEWSO also advises the brigade S2 on the capabilities of EW assets in support of brigade operations. The brigade S2 and targeting officer provide the HPTL, PIR and TSS information to the IEWSO.

Direct Support Artillery Battalion S3

The DS FA battalion S3 is responsible for operations of the battalion. He is responsible for controlling the fires of the battalion and supporting artillery units. He must ensure that targets are attacked according to the priorities established by the brigade. He must make sure that the FDC processes targets in accordance with the commander's attack guidance.

Direct Support Artillery Battalion S2

The DS FA battalion S2 supervises the operations of any TA assets attached to the battalion. He advises the S3 on their employment, which includes the following:

- Primary and secondary search zones.
- Coverage of the brigade zone.
- Operating limitations based on the acquisition and attack threats in zone.

The S2 formulates the radar deployment order (RDO), as described in FM 6-121, to control radar coverage and operations. The S3 approves the RDO after considering the guidance and taskings received from both brigade and force artillery headquarters. The S2, with the fire direction officer, advises the S3 on munitions effects against particular targets. The DS FA battalion S2, supported by the FSE, is the primary intelligence link between the FA battalion TOC and the brigade TOC.

SYNCHRONIZATION

The key to effective synchronization of targeting is the thorough use of the targeting process in the planning, preparation, and execution of the maneuver plan. As the commander and staff form the operations plan during the war-gaming process, the DST is developed. It is the key to synchronizing the FS plan with the scheme of maneuver. The DST facilitates the war gaming between the S3, S2, FSO, engineer, ADO, and ALO. It also identifies critical fire support triggers on the battlefield and is an aid in synchronizing the BOS. The war-gaming process identifies the decision points for the commander. The DST graphically portrays the decision points and the options available to the commander if an action occurs. The DST provides the information required to provide effective fires in support of the maneuver force.

The attack guidance provided FS personnel and units must define how, when, with what restrictions, and in what priority to attack different targets. This should include guidance on the following:

- Final protective fires (FPFs).
- Screening fires.
- Obscuration.
- Illumination.
- Positioning.
- Engagement method.
- Counterfire targets.

Firing units must know the critical time and location they must be in to support each phase of an operation.

The commander, FSCOORD, and FSOs should remember that all tasks must be assigned. If a task is not assigned to an individual, everyone will believe it is someone else's responsibility. Unassigned tasks may never be carried out. For example, simply assigning responsibility for firing on a planned target is not enough. The criteria for firing must be made clear. Previsions must be made to ensure the FO or FSO in question is fully aware of his responsibilities and will be able to carry out the task.

The FS execution matrix is the blueprint for executing the fires portion of the OPORD and should correspond to the synchronization matrix. There is no specific format for how an FS execution matrix is set up. An example is shown below. The matrix should be clear, simple, and convey the commander's concept of fires and plan for execution. It must be easy to work with and detailed enough to implement. It should be tied to the events on the DST. The brigade FS execution matrix allocates resources and assigns responsibilities for observing and executing brigade targets. It defines the transition from the brigade to the TF fight. The TF FS execution matrix is a stand-alone document. It is detailed enough for task force and company FSOs to assume control and execute the TF commander's intent for fire support. A more detailed explanation of the fire support execution matrix is in FMs 6-20-40 and 6-20-50.

EXAMPLE BRIGADE FIRE SUPPORT EXECUTION MATRIX

PHASE	ADVANCE	ASSAULT	ADVANCE	SECURE
POF / PRI TGT	2AR / 6	TF 78	78	2AR
TF 77IN		AB 1000 AB 1004	AB 1010	
TF 1AR			AB 1009 AB 1008	
TF 78AR		AB 1002 AB 1003 AB 1005		A4B
TF 2AR	A1B	AB 1001 AB 1006 AB 1007		A3B
BDE	A2B *BDE PREP	CAS *DIV PREP	CAS	CAS
CFL	PL HORSE	O/O PL DOG	→	→

At TF level, the TF FSO prepares the fire support execution matrix. (See the figure below.) He coordinates with the company FSOs and mortar platoon leader. In conjunction with the TF S3, he positions and controls the organic mortars of the TF. With the S2, he positions and controls observation assets. This coordination is needed to ensure the FS plan–

- Meets the commander's guidance.
- Avoids unplanned duplication.
- Uses all assets assigned to the TF.
- Assigns observers and backup observers for all TF targets and brigade targets assigned to the TF.
- Specifies who, when, where, and how for detecting and delivering fires on targets.

EXAMPLE TASK FORCE FIRE SUPPORT EXECUTION MATRIX

	AA	LD/LC	PL GUN	PL PISTOL	PL SABER	
TEAM TANK	FA PRI TGT AB 3002	FA POF FA PRI TGT C3B	Series Finish	FA POF 155 FPF		7
TEAM B	MORT B POF MORT B PRI TGT AB 3110	MORT B POF MORT B PRI TGT AB 3119	MORT POF	MORT B POF 155 FPF	MORT B POF	6
TEAM C	MORT A POF MORT A PRI TGT AB 3207		FA POF GROUP C6B			5
TEAM D		MORT A POF MORT A PRI TGT AB 3216		MORT A POF MORT FPF	MORT A POF	4
SCOUTS	FA POF					3
TF	GROUP C4B Series Joe	ACA Orange TOT 0800	F16 (GROUND ALERT) 0815-1015	GROUPS C7B, C8B, C9B, ACA GRAPE 0/0	FA POF GROUPS C12B, C13B	2
ATTACK HELOS		TAI 6		TAI 5		1
A	B	C	D	E	F	

LEGEND:

AA = assembly area
ACA = airspace coordination area
LC = line of contact
LD = line of departure
MORT = mortar
TOT = time on target

Clear, well-practiced SOPs within division, brigade, and task force teams are essential to synchronizing the targeting effort. The SOPs must specify when and how taskings and requests for support and information are to be passed.

Rehearsals are required to build confidence and understanding among all BOS before combat operations. Rehearsals at all levels are key to understanding–

- The concept of the operation.
- Verifying specific responsibilities and timing.
- Backup procedures to help synchronize unit

A rehearsal is an effective tool for identifying and refining battle plans. However, rehearsals should not be used for making major changes to the plan. Any last-minute, major changes to the scheme of maneuver made during rehearsals may cause a reduction in the effectiveness of fire support.

The key FS points that should be emphasized during rehearsals are:

- Positioning and movement plans of fire support and target acquisition systems are synchronized with the maneuver concept of operations and the reconnaissance and surveillance plan.
- TA plan under the supervision of the FA S2 is verified.
- Integration of the TA and intelligence collection plan is verified.
- FS plan incorporating lethal and nonlethal attack assets is validated with the scheme of maneuver, the commander's intent, and the attack guidance.
- Obstacle and barrier plan of the maneuver force is incorporated into the FS plan.
- Fire support and maneuver control measures are fully integrated.
- Target locations, engagement criteria, rules of engagement, and trigger points or events to initiate attack are verified.
- Fire support plan and reconnaissance and surveillance plan are synchronized with the maneuver concept of operations and meets the commander's intent.
- Primary and backup observers for each target are assigned to support the fire support plan.
- Battlefield handoff points to indicate transition from the brigade fight to the battalion TF fight are clearly identified; for example, phase lines, terrain features, grid coordinates, and so forth.
- Responsibilities for clearance of fires are clearly spelled out.

Rehearsals are conducted early enough for essential personnel to attend, disseminate and implement changes, and get into position before plan execution. If time does not permit a complete rehearsal with all essential personnel and equipment, some form of rehearsal must take place with all key leaders. It can be as simple as a leader discussion over a sand table or a radio rehearsal tactical exercise without troops over similar terrain. Rehearsals provide the commander and the FSCOORD with a final opportunity to synchronism the FS plan with the scheme of maneuver before the battle. If possible, the fire support plan should be rehearsed with the maneuver plan. A combined rehearsal improves responsiveness of fires and synchronization of all BOS. At the end of an effective rehearsal, everyone involved in the detecting and delivery functions of the targeting process should know their responsibilities and the cues for action.

APPENDIX A

INTELLIGENCE PREPARATION OF THE BATTLEFIELD AND TARGET VALUE ANALYSIS

IPB considers terrain, weather, enemy doctrine, and current enemy actions to arrive at enemy COAs. TVA is a methodology which concurrently identifies potential HVT sets within a given tactical situation. It further develops the HVTs to produce the HPTL, TSS, and the AGM.

THE IPB PROCESS

IPB can be best described as the process of understanding the battlefield, the enemy, and the options presented. The objective of IPB is the early identification of probable courses of enemy action. It is a continuous, systematic, labor-intensive process. It begins with analysis of enemy doctrine and capabilities in a geographical area, the terrain, and the effects of weather on that terrain. The products of IPB are graphic overlays and templates used to visualize and predict enemy intentions.

Evaluating the threat in the IPB process uses doctrinal templates that convert enemy order of battle (OB) to graphics. The graphics aid in TVA and initial identification of potential HVTs. HVTs are assets the enemy commander needs for successful completion of his mission. Situation templates help in refining HVTs for specific battlefields and enemy COA. Concurrent with development of the situation template is an examination of enemy decision points and/or critical nodes as a part of each COA. The examination shows what might happen if the enemy commander's plan fails and what actions make up his failure options. Evaluation of enemy COA leads to identification of critical enemy functions in each COA and the HVTs associated with each function. Applying the IPB process helps the commander selectively apply and maximize his combat power at critical points in time and space. It does this by describing the battlefield environment, how the environment affects his unit and his adversary, and what the likely COA will be. Situational templates support the development of event templates. Event templates help identify critical enemy activities. It also identifies NAIs where specific enemy activities or events will help confirm or deny the adoption of a particular COA. Potential HPTs are identified. HPTs are those HVTs that must be attacked to give the commander a significant advantage in defeating the enemy. This work is further analyzed in the war-gaming process.

The single-source analysis element of the ACE at corps and division main CPs perform the initial EPB in support of the G2 IPB effort. The initial EPB is passed to the MI unit technical control element. The ACE expands and correlates the EPB with technical data such as call signs and frequencies. The EPB examines the association of specific emitters with identified units. It also checks the electronic line of sight from these emitters to potential locations for friendly EW assets. The result of EPB is the identification of targets that are important to the enemy operation which can be influenced with available EW assets. An example is a specific analysis of enemy air defense systems that can effect aviation operations throughout the zone of action. It could result in a terrain-based product showing enemy radar profiles and the effect of geography and line of sight on engagement profiles.

IPB TARGETING PRODUCTS

The IPB process provides the commander and his staff with a basis for fire and maneuver decision making. In other words, a framework for deciding where and when to employ limited resources to achieve decisive results. It is a starting point for, and integral to, the targeting process. Enemy capabilities are evaluated from a doctrinal standpoint and in relation to the specific battlefield and friendly mission to produce the following graphic products:

- Doctrinal template.
- Situation template.
- Event template.
- DST.

Using these, the commander and staff can identify HVT and HPT as they enter the battle area.

Doctrinal Template

Situation template development begins with the doctrinal template. The template shows how enemy doctrine dictates their approach to a particular tactical situation, without terrain and weather constraints. A doctrinal template depicts unit composition, width, depth, organization, formation, and disposition. It aids analysts in determining the location of threat units, weapons, equipment, and boundaries when assessing the actual enemy force. It can also identify gaps in intelligence for the collection plan.

To the target producer, the primary importance of the doctrinal template is that it provides the basis for initial HVT category identification. It shows him the critical assets for each type of operation at each echelon of command by doctrine. From these he can draw his initial HVT categories.

Files of doctrinal templates can be developed to show enemy tactical doctrine for a variety of maneuvers on the basis of the current situation. They can be varied by echelon of unit depicted, and by COA or type of operation. (Example: a regiment or brigade conducting a hasty river crossing operation.) An example of a doctrinal template for a motorized rifle regiment (echelon) in prebattle formation (COA) is shown in the figure on the next page.

Situation Template

When adjusted for terrain and weather, the doctrinal template becomes a situation template. It shows how enemy forces might deviate from doctrinal tenets to accommodate the realities of geography or weather-generated obstacles. (The figure on page A-4 shows the same motorized rifle regiment adjusted to terrain constraints.)

The situation template focuses on the enemy's activities within specific mobility corridors of an avenue of approach. It graphically represents how his formations might have to adjust to move, shoot, and communicate within the corridors.

When considering the intentions of the enemy, the analyst also war-games the enemy through COA, friendly reaction, and counteraction. The war-gaming process causes the situation template to change as the analyst projects the enemy arrays at various points in time and phases of the battle.

Event Template

Event templates identify and analyze significant battlefield events and activities which provide indicators of enemy COA. It facilitates comparing what we know the enemy **can** do with what he is doing, and thus predict what he **will** do next.

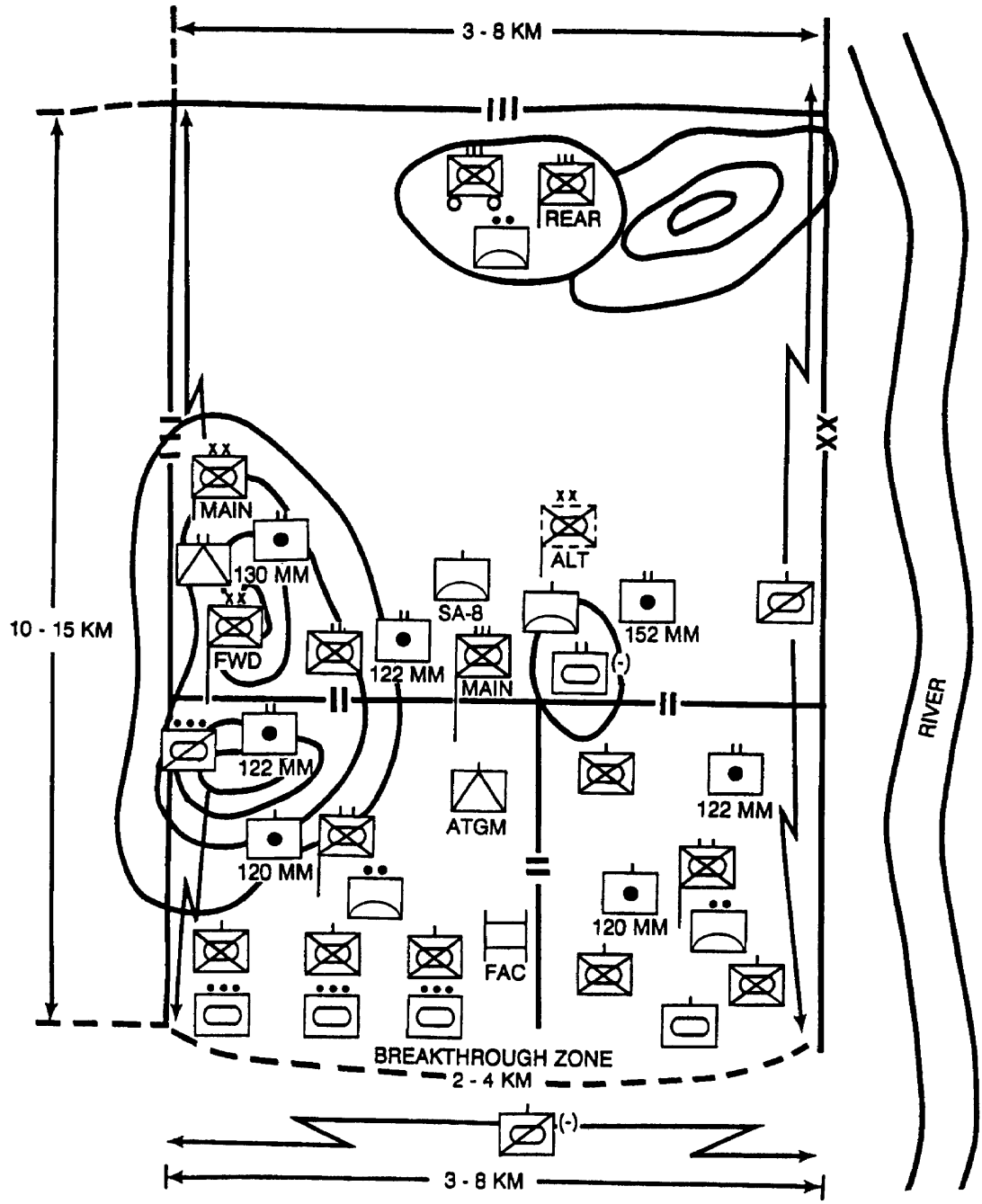
The S2 or G2 uses event template techniques to select **critical areas** on the battlefield for the collection plan, while eliminating less vital areas. It also allows for best use of collection assets by watching critical areas at **critical times,** rather than wasting assets during the wrong periods. (See the figure on page A-5.) (See explanation of **NAI** and **time-phase lines (TPL)** on page A-5.)

The event template also provides the S3 or G3 with useful information as he plans the battle. By projecting the most likely enemy COA, he can plan where, when, and what to shoot, jam, communicate, and maneuver against and what results to expect.

The event template is a critical step in the development of the final product of IPB--the DST.

The event template depicts NAI along each avenue of approach and mobility corridor and the relationship of events between separate avenues of approach and mobility corridors. It is used to analyze the sequence of events that should occur for each enemy COA and how they relate to one another. The event template is developed by war-gaming each enemy COA from the point where friendly or enemy activity begins to the final objectives.

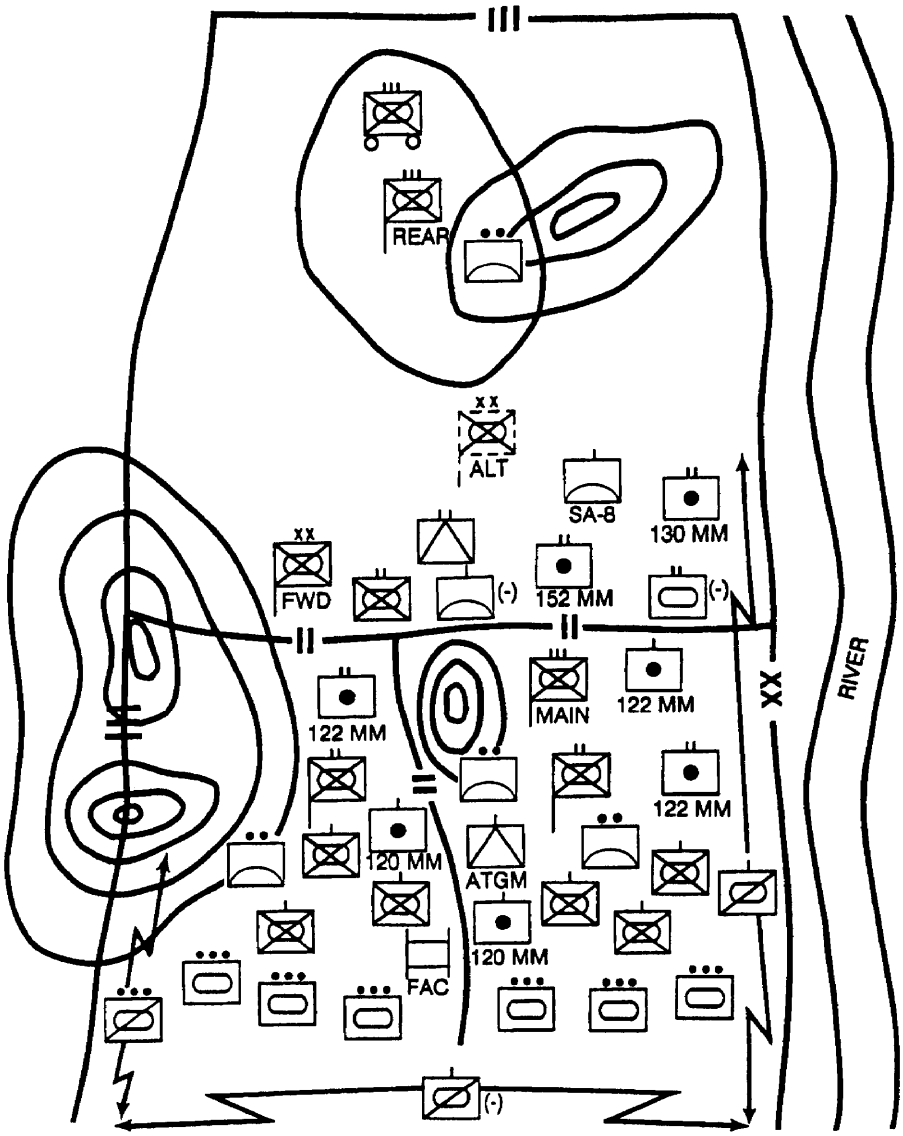
EXAMPLE DOCTRINAL TEMPLATE



LEGEND:	**ATGM**	=	antitank guided missile	**KM**	=	kilometer
	ALT	=	alternate	**MM**	=	millimeter
	FAC	=	forward air controller			

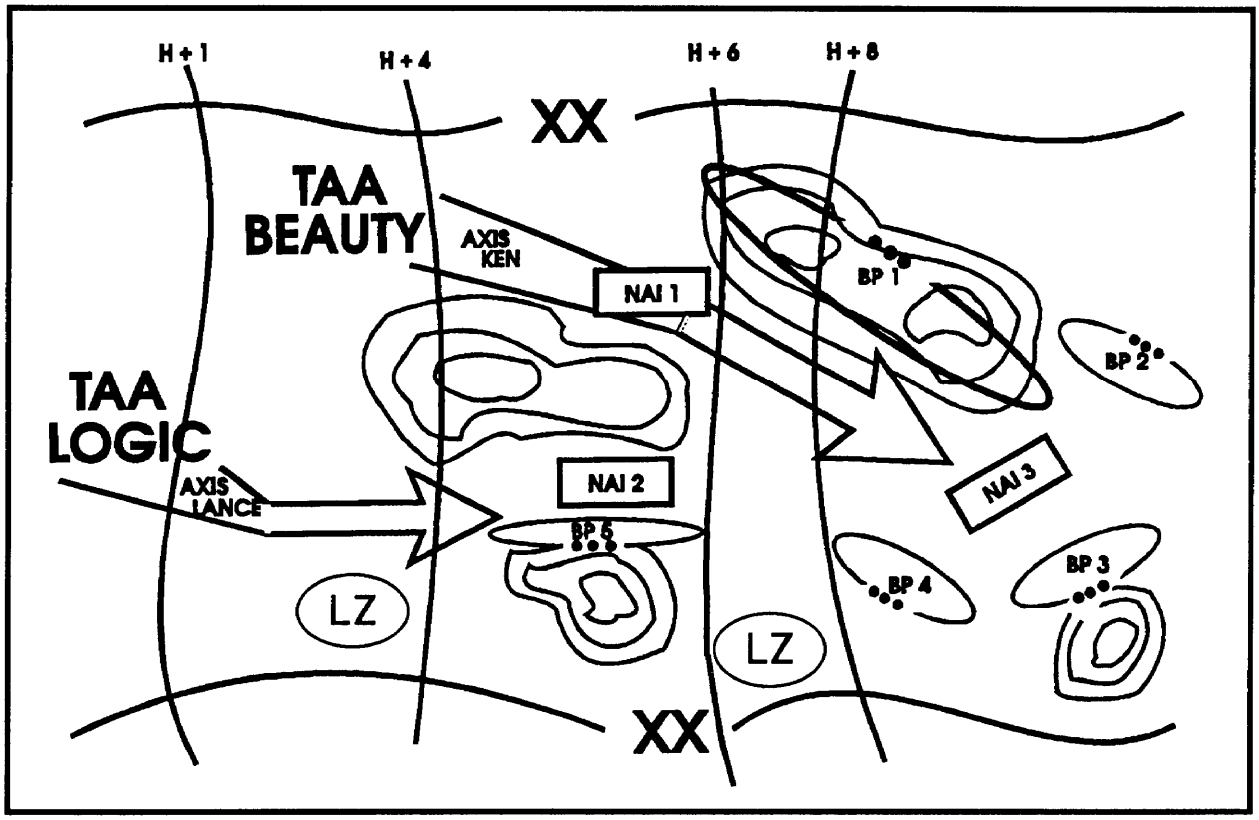
NOTE: This template shows a motorized rifle regiment main attack prebattle formation (breakthrough).

EXAMPLE SITUATION TEMPLATE



NOTE: This template shows a motorized rifle regiment main attack prebattle formation (breakthrough) adjusted to terrain constraints.

EXAMPLE EVENT TEMPLATE



Named Area of Interest

An NAI is an area along an avenue of approach or mobility corridor where enemy activity (or lack of it) will confirm or deny a COA. Designating NAIs allows for observation of all the viable enemy options without wasting coverage on areas of little importance. NAIs frame significant military events not only by location, but by time.

Time-Phase Lines

TPLs are the analyst's estimate of the rate of advance (enemy or friendly) and help trace estimated FLOTs at any given time. During actual operations, TPLs are adjusted to reflect actual enemy and/or friendly movements in the given situation. From the targeting perspective, they help determine when HVTs and HPTs will be vulnerable to attack.

Decision Support Template

The DST is essentially a combined intelligence and operations estimate in graphic form. It relates the detail of the event template to decision points (DPs) that are significant to the commander. It identifies critical battlefield areas (including TAIs) and events and activities that require tactical decisions by time and location. (See explanations of TAI and DP.)

Although the DST is a total staff effort, it is essentially a product of the *targeting triad* -- the S2 or G2, S3 or G3, and FSE and/or FSCOORD. It is updated throughout the war-gaming process.

Target Area of Interest

A TAI is an engagement area where the interdiction of an enemy force by fire, maneuver, or jamming will reduce or deprive it of some capability. TAIs are usually avenues of approach or mobility corridors. Unlike the NAI, which is designated for watching enemy activity, the TAI is an area in which we wish to interdict enemy activity to cause him to abandon a particular COA. (Destruction is seldom a requirement for interdiction to be effective.) Examples of TAIs are–

- Bridges.
- Road junctions.
- Choke points.
- Drop zones and landing zones.
- Known fording sites.

- FARPs and rear area refueling and rearming points.

TAIs can indicate where HVTs and HPTs might be most vulnerable to attack. TAIs are normally associated with DPs.

Decision Point

DPs are identified after TAIs are selected. They identify events, areas, and points on the battlefield, and **where** and **when** tactical decisions are required by the friendly commander. (They do not indicate what decision will be made.) They are selected according to options and assets available to the commander. Because they are time-sensitive, their determination must anticipate enemy movement rates and distances and times required to implement decisions. (See the table below.)

BASIC GUIDELINES FOR PLACEMENT OF DPs

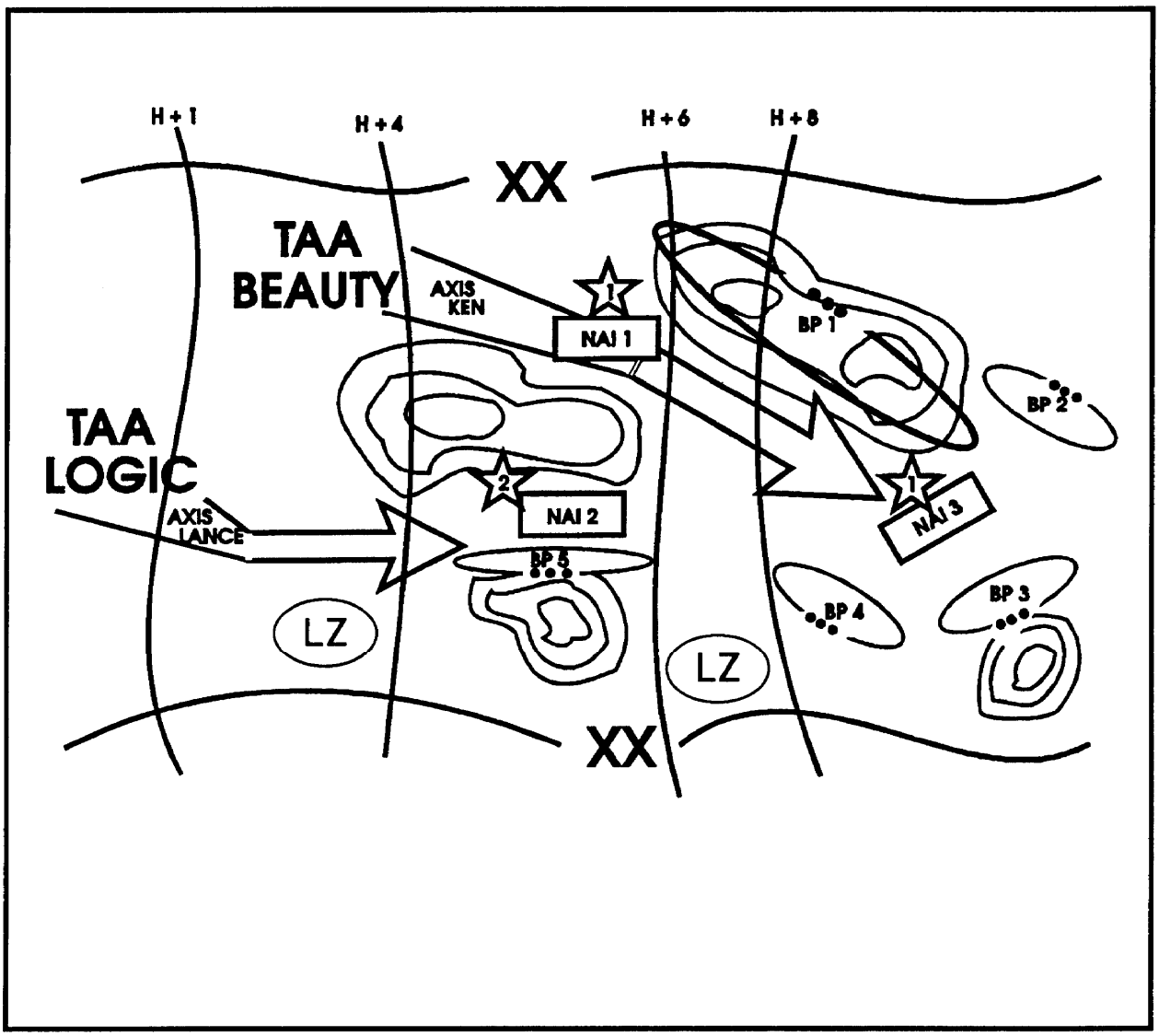
ASSET	DECISION IMPLEMENTATION TIME
Maneuver elements.	Based on METT-T.
Direct fire weapons.	Minimum lead time required.
Artillery (including smoke and illumination).	5 to 15 minutes (system dependent).
FASCAM (artillery-delivered mines).	7 to 20 minutes.
Attack helicopter units (close 1 to 15 km from FLOT).	1 to 2 hours.
Attack helicopter units (deep 15+ km from FLOT).	3 + hours.
Preplanned aviation or CAS.	20 minutes (minimum).
On-call aviation or CAS.	Up to 2 hours.
J-SEAD.	Up to 2 hours to coordinate, 5 minutes to execute.
Operational NBC decontamination.	30 minutes.
Thorough NBC decontamination.	2 to 4 hours.
Air Force intelligence collectors:	
RF-4 preplanned.	12 to 24 hours.
RF-4 immediate (high priority).	30 minutes to 3 hours.
U-2 or TR-1 preplanned.	24 to 36 hours.
U-2 or TR-1 diversion.	5 to 6 hours.
Ground or airborne IEW.	30 minutes (minimum).

DSTs depict–

- TAIs.
- DPs.
- TPLs.
- Avenues of approach and mobility corridors.
- Objectives.
- Current enemy situation (from the current situation map [SITMAP] and situation templates).

The figure below shows an example of a DST.

DST



THE TARGET VALUE ANALYSIS PROCESS

Given a selected COA and the input generated by the IPB process, target priorities can be developed. The TVA process identifies potential HVT **sets** associated with critical enemy functions that could interfere with the friendly COA or that are key to enemy success. The target priorities are used by both fire support and intelligence systems in their target attack and collection plans. The G2, G3, and FSCOORD participate in this process.

The DST is often associated with a BOS synchronization matrix. The battle staff then plans appropriate support from each BOS to support the commander's DPs and scheme of maneuver. An example of a partial BOS synchronization matrix is shown in the figure below.

BOS SYNCHRONIZATION MATRIX

DP NO	No 1	No 2	No 3
Decision criteria	121 Inf bn passes through NAI 1 or AA into NAI 3.	Reinforcements move into NAI 2.	
Maneuver	TF 2/2 occupies BP 1, 2. TF 2/3 occupies BP 3. TF 2/4 occupies BP 4, 5.	TF 2/2 O/O moves to reinforce BPs 3, 4. TF 2/3 occupies BP 3. TF 2/4 occupies BP 4, 5.	
FS	Priority to TF 2/2, TF 2/3, TF 2/4.	Priority to TF 2/3, TF 2/4, TF 2/2.	
Intelligence	Identify lead elements; track movement; report to FSE.	Identify tgts in TAA Logic; report movement along axis Lance.	

TVA offers the combined arms commander the means to:

- Provide focus for his target acquisition effort.
- Identify priorities for the engagement of enemy targets that will facilitate the success of his mission.
- Identify effects criteria.
- Permit planning for identified contingencies based on enemy options available when the enemy operation fails.
- Better estimate friendly unit capabilities.

TARGET VALUE ANALYSIS SOURCES AND PRODUCTS

The TVA process draws on IPB products and other sources in the production of HVTs. **Target spread sheets** and **target sheets** provide the initial sources for TVA. The ultimate products of TVA are the **HTPL, TSS,** and the **AGM.**

High-value targets

Those assets the enemy commander requires for the successful completion of his missionare HVTs. The loss of HVTs would be expected to degrade important battlefield functions. HVT identification begins as early as the development of the doctrinal template.

Refinement takes place during the development of the situation template and the war-gaming process that goes along with it.

High-payoff targets

HVTs which, if successfully attacked, would contribute substantially to friendly operations are called HPTs. HPTs are developed from HVTs when the various COA are war-gamed. Developed on the basis of METT-T, their selection does not depend on unit ability to acquire or attack them. If it is beyond unit capability, they can be passed to the next-higher echelon as a priority intelligence requirement.

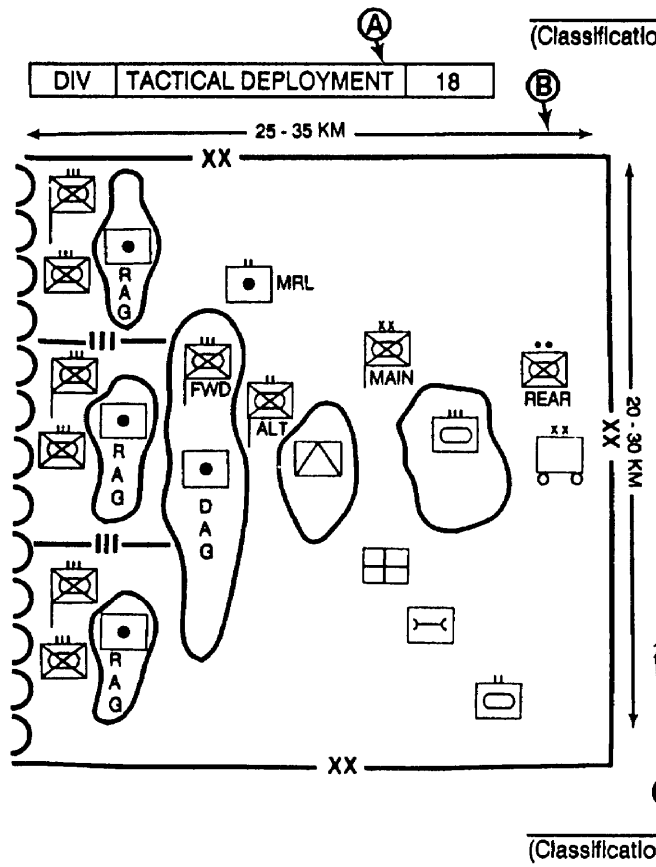
TARGET SPREAD SHEETS

Target spread sheets are an integral part of TVA. The majority of target spread sheets used today were prepared for a Warsaw Pact force in a european mid-to-high intensity conflict. However, the all-source production section (ASPS) target analyst can produce his own tailored to the threat he faces. Target spread sheets contain many IPB products already developed and can help in developing other IPB products during war-gaming.

The standard target spread sheet should contain the following as a minimum:

- Doctrinal template and resume. (See the discussion on page A-11.)
- Failure option statement. (See the discussion on page A-11.)
- Relative value matrix. (See the discussion on page A-11.)
- Attack rationale column. (See the discussion on page A-12.)
- Specific high-value targets. (See the discussion on page A-13.)

EXAMPLE OF ONE SIDE OF A TARGET SPREAD SHEET



C

OBJECTIVE: Enemy commander will disperse his troops in assembly areas to prepare for the conduct of attacks against the expected defense.

DOCTRINAL APPROACH:

1. Planning and preparing for the attack will be based upon the combat objectives and missions assigned by the orders of the next higher commander.
2. The methods and measures to achieve these objectives and to carry out assigned missions are determined and developed after the attack force commander clarifies the combat task he has been given and evaluates the specific situation.
3. Troops will be positioned near movement routes to permit rapid, effective movement to the attack line.
4. The deployment pattern will reflect the commander's concept for the coordinated application of available combat power and support in carrying out the assigned mission.

FALLBACK: Given successful US effort, the following options are available to the enemy commander:

- Deliberate defense.
- Movement to contact.
- Withdrawal.

D

LEGEND: DAG = division artillery group RAG = regimental artillery group

The figures on pages A-9 and A-10 are examples of the front and back sides of a target spread sheet. On one side of the spread sheet (page A-10) will be information about enemy forces at regiment, division, army, and front with respect to operations the forces are expected to conduct. On the other side (page A-9) will be a summary of information about the enemy's doctrine and tactics. This side explains how he is expected to fight, what he intends to accomplish, and what alternatives he has if he fails to accomplish his primary mission. The major sections shown on the example are:

- Title and sheet number (A).
- Doctrinal template (B).
- Doctrinal resume (C).
- Failure option statement (D).
- Relative value matrix (E).
- Attack rationale column (F).
- Specific HVTs (G).

EXAMPLE OF OTHER SIDE OF A TARGET SPREAD SHEET

(Classification)

DIV	TACTICAL DEPLOYMENT	18

DISRUPT	DELAY	LIMIT	TARGET SET	RELATIVE WORTH
X			C^3	
X	X		FIRE SPT	
X	X	X	MANEUVER	
			ADA	
			ENGINEER	
X		X	RSTA	
			REC	
*	*	*	NUKE/CHEMICAL	
X	X		CLASS III POL	
			CLASS V AMMO	
			CLASS IX MAINT	
X			LIFT	
X			LOC	

(F)	(G)
Command centers coordinate movement, refuel, resupply, security. FS centers close by.	Main CP (28, 38) Rear CP (27, 40) Forward CP (39)
Lines of communication allow high speed transit/resupply.	Checkpoints Major travel routes
Maneuver elements bunched and vulnerable. Primary force component.	Deployed elements (46, 48) Movement 50, 51)
Fire support systems active later in the operation/screen movement.	Fire direction (1, 2, 3) Weapons (19, 20)
RSTA assets perform route recon and flank security.	Radar (14, 17) Recon patrol (84, 85)
POL storage and transport aid transit and maintain momentum.	Transport (111, 128) Storage (114, 115)

(Classification)

NOTE: This is not an actual target spread sheet. It is an example, using a notional situation, and is not to be used as an actual targeting aid.

Title and Sheet Number

These specify the tactical situation and enemy unit echelon for which the sheet was developed. The number refers to that specific situation-echelon combination for ease of access.

Doctrinal Template

This shows the major subunits of the enemy organization being considered deployed to scale, without regard to the effects of terrain and weather. Fire support personnel can use the template to begin planning acquisition coverage and likely areas of interest. However, the template is only a guide.

Doctrinal Resume

The doctrinal resume is a synopsis of the major features of the operation. This portion indicates the objectives of the enemy force and the tactical principles that govern how the unit is supposed to fight.

Failure Option Statement

The failure option statement lists the doctrinal courses of action the enemy can take if he fails in the situational option described. Analysts consider this as they war-game the enemy battle plan. Keep in mind that the options are doctrinal and could vary, depending on factors influencing the actual situation.

Relative Value Matrix

The relative value matrix lists 13 standard target sets or categories covering the major battlefield functions. All targets may be categorized in one of these groups. The 13 target sets are based on the battlefield functions discussd below.

C^3

C^3 stands for command, control, and communications centers. Generally, these are targets that affect maneuver or combined arms C^3. Examples include regimental, divisional, and army CP and traffic control points.

FIRE SPT

This refers to fire support targets. It covers the entire threat fire support system. Subsets include fire support command and control (C^2), weapons, TA, and ammunition logistics. Weapons include cannons, guns, missiles, and fixed- and rotary-winged (attack aviation) aircraft.

MANEUVER

These targets are maneuver tactical subunits in various postures. They are motorized rifle and tank companies, assembly areas, march columns, assault aviation, and advanced guard units.

ADA

This set covers air defense system targets. These include missile unit headquarters and processing centers, radar sites, and short-range air defense platoons.

ENGINEER

This refers to all engineer-type targets. Examples include bridging, ferry units, crossing sites, snorkeling sites and movement support elements.

RSTA

This group covers reconnaissance, surveillance, and target acquisition assets. RSTA refers to the concept that all intelligence and TA assets are under the control of one manager at each major unit level. Target types include ground surveillance radars, reconnaissance patrols, and airborne sensor systems.

REC

Radio-electronic combat (REC) is commonly known in Western circles as offensive electronic warfare. Some dedicated collection TA assets are listed here instead of under RSTA. The REC targets include communications and noncommunications jammers, radio-radar direction finding (DF) stations, and airborne jammers. There are 23 REC HVT types.

NUKE/CHEMICAL

This set covers nuclear (NUKE) and chemical support elements and major weapon firing positions. Nuclear and chemical targets are always treated as special cases because of the destructive and disruptive nature of the weapons that they support

CLASS III POL

This target set covers petroleum, oil, and lubricants (POL) support. It is critical because of the level of mechanization of some forces and the projected rates of advance for second-echelon forces. Targets include transport and pipeline units and POL points.

CLASS V AMMO

This refers to ammunition support targets. These include ammo storage sites, depots, and distribution points.

CLASS IX MAINT

This is the set that covers the maintenance and repair capability. The targets include regimental maintenance units, vehicle collection points, and mobile repair facilities.

LIFT

Lift refers to general transport units in threat forces. While there is only one target category, special consideration should be given to heliborne transport.

LOC

This set covers lines of communication (LOC) for which no special target types are designated. However, any target that would interfere with the ground or air LOC, if attacked, is a candidate. Such targets include choke points, bridges, tactical airfields, and railheads.

RELATIVE WORTH

In the relative value matrix, the target sets are rank-ordered according to their relative worth to the enemy operation. The right side of the matrix has a relative value column which indicates the target sets that are considered high-value for the situation. It presents their relative value with respect to each other by use of a simple bar chart. A set with three blocks filled in is not 25 percent higher-value than a set with only two blocks filled in. The blocks are only to indicate the ordering of sets compared with one another. The target sets that are not considered high-value are not assigned a bar value.

DISRUPT, DELAY, LIMIT

The left side of the matrix consists of three columns labeled **"DISRUPT," "DELAY," and "LIMIT."** An **X** in a column associated with a target set indicates that a benefit may be accrued by attacking the target with one of these particular goals in mind.

Elements of a target set could conceivably be attacked to disrupt, delay, and limit depending on the target and the situation. This part of the relative value matrix is a general guide to desired effects against a target. It may remind planners that a target need not be neutralized or destroyed to be rendered ineffective.

Disrupt, delay, and limit are not to be confused with attack guidance terms such as suppress, neutralize, and destroy. Disrupt, delay, and limit are the effects that the attack on a specific target set will have on the echelon being faced. The targeting cell determines the effect desired. This determination is based on the combined arms commander's concept of operation. The amount of ammunition to use or the intensity of the attack (suppress and so forth) is not tied to the relative worth of a target set. The intensity of attack is based on the target vulnerability and what must be done to the target to achieve the effect desired.

An **X** in the DISRUPT column indicates that it is beneficial to attack a target with the goal of disrupting the function of the target. This could be achieved by continuous suppression, neutralization, or destruction of the target by lethal means. In other cases, it could involve offensive EW for some target types. The enemy function represented by the target is considered unacceptable on the battlefield and must be removed.

An **X** in the DELAY column indicates it is beneficial to attack the target to delay its arrival on the battlefield. For instance, a commander could opt to use less ammunition and slow a second-echelon force for a given period. This would free his remaining fire support assets for a greater effort in close-in or rear operations. The delay would allow his maneuver forces to recover and refit. Then when the second echelon finally arrived at the FLOT, a coordinated attack could be launched. In this case, the unacceptable aspect of the target is its time of arrival. The implication is that the combined arms team can defeat such a target if given enough time to prepare.

An **X** in the LIMIT columm indicates that a benefit can be gained if the target approach is limited. The desired effect in this case is diversion of the enemy unit to another part of the battlefield. This either puts the target in a part of the battlefield where it can be better handled or puts the enemy on unsuitable terrain.

There is one target set that always has the same relative value at division level and above. Nuclear and chemical support targets threaten any combat operation. The effects of nuclear and chemical weapons are often difficult to completely predict. These weapons complicate the planning process and threaten the commander's concept. Obviously, such weapons should be attacked with extreme vigor whenever they are found on the battlefield.

Attack Rationale Column

The result of the attack on each HVT and secondary effects on other target sets are determined during war-gaming. This information is recorded in the target spread sheet attack rationale column. This column gives commanders a general guide of the benefits derived from attacking targets in a particular target set. This column shows the desired objectives for attack of the targets in the set. Descriptions are connected to their set by lines. A solid line indicates the primary results of attacking targets in the set from which the line is drawn. These lines should be traced from left to right. Some descriptions are further attached to other sets by dotted lines. They indicate that a secondary benefit is achieved for that set when the primary set is attacked. These lines are traced from the attack rationale column back to the target set (right to left).

There are two type styles used in the attack rationale column. Normal type indicates that the associated set should be attacked in a specific sequence. The attack sequence should be the same as the listing on the right side of the sheet. This is why the lines cross to place the sets in the proper attack order on the right side. Generally, the targets in these sets will give the greatest benefit if attacked in the sequence indicated by the order of the descriptions. Descriptions in italics indicate that for the enemy posture considered the sets always have the same value throughout the operation.

Combined arms commanders should be familiar with the rationale for attack of targets to provide complete and accurate target attack guidance. Artillery personnel should be very familiar with the attack rationale so they can correctly advise the combined arms commander on attack guidance. This will ensure the guidance is within the TVA guidelines while providing optimum effects on the enemy formation.

Targeting personnel can use the attack rationale column to help develop the HPTL and attack guidance. The target sets that are sequentially ordered should be prioritized and scheduled accordingly. Target sets whose attacks would provide great secondary benefit should be considered before single benefit sets with the same value.

Specific High-Value Targets

Specific assets within each target set are noted by the G2 or S2 as HVTs. For each set there are usually some HVTs, although the set itself might be given a low relative worth. The targeting team uses the right side of the spread sheet in recommending attack guidance and developing the HPTL for the operation.

Each target is listed by the target sheet number and its name. Personnel using the spread sheet to formulate detailed attack guidance should not include all of the specified HVT. They should use only those in the higher-value categories. For example, when we are conducting pursuit operations, the enemy engineer targets are a low value category. Mechanized minelayers, however, are HVTs because, if allowed to function, they can emplace minefields that could cause pursuing forces to lose contact. Targeting personnel will consider all of the HVTs in the context of the situation and the commander's directives before developing the HPTL.

TARGET SHEETS

The decision on which HVTs should or could be attacked requires knowledge of their individual vulnerabilities, locations, signatures, and functions. Also considered is the effect that an attack on them will have on the parent enemy unit. This information, when consolidated, is called a target sheet. Locally produced target sheets should contain the following major sections:

- Target category.
- Target sheet number and title.
- Function.
- Description.
- Signature.
- Degradation effect.
- Some form of graphic representation.

The construction of target sheets is simple and much of the information is readily available, although from varied sources. An example of a target sheet is on the next page.

The **target category** indicates to which of the 13 sets the target belongs. A **sheet number and title** should be assigned to the target so it may be referenced in the future. The sheet number can be used to cross-reference the target sheet with the spread sheet. The title refers to the type and function. The **function** of the target details the specific operations and tasks that the target is expected to do. It includes the primary and secondary functions of the target and indicates any relationship to other target categories or types.

The **description** details the number and type of vehicles and equipment in a position and the approximate number of people with the target. It details-

- Usual distance from the current forward edge of the battle area (FEBA).
- Expected posture of the target with respect to camouflage and orientation.
- Type and amount of terrain occupied.

The description is useful in considering the types of attack systems and munitions to be used.

The **signature** describes all possible signatures to include visual, electronic, auditory, and infrared. This portion is especially useful to target acquisition and intelligence collection managers. The effects on the parent or associated intelligence unit when the target can no longer function are discussed. This is called the **degradation** portion.

The final part of the target sheet should be a **graphic representation** of the target. This aids in identifying the target and in analyzing its vulnerabilities. It may be used to help determine the effects desired against the target.

(Classification)

TARGET CATEGORY:	Engineer.
TARGET SHEET NO/TITLE:	GT 75./Ferry crossing site.
FUNCTION:	Provide rapid crossing of water obstacles for tanks and other systems lacking amphibious capability.
DESCRIPTION:	Target radius-point target. Posture-exposed on water surface FEBA distance. Composition: Vehicles, normally two ferries or rafts. (If the river is over 300 meters wide, there may be as many as five.) Personnel:
SIGNATURE:	Visual--See graphic. Electronic-- Other--
DEGRADATION:	Forces lacking amphibious capability must find alternate means to cross.
GRAPHIC REPRESENTATION:	(Omitted)

(Classification)

APPENDIX B
DETECT AND ATTACK SYSTEMS

The first part of this appendix categorizes acquisition systems into three groups:

- *Those deployed at corps.*
- *Those deployed at both corps and division.*
- *Those deployed at division only.*

Local modification tables of organization and equipment (MTOEs) should be reviewed for system availability within specific organizations.

The second part of this appendix provides brief descriptions of attack systems available to corps and division commanders. In addition to organic Army fire support systems, Air Force, Navy, and Marine Corps weapons are included.

TARGET ACQUISITION SYSTEMS

Targets must be detected, located, identified, and prioritized with enough accuracy to permit effective attack. Fire support agencies and maneuver headquarters have organic and attached acquisition assets to aid the TA effort. The fire support system consolidates targeting information from many different agencies. In this part of the appendix, a brief description of TA systems are provided followed by tabular data pertaining to specific systems.

Maneuver Units

Maneuver units are a primary means for TA. Individual soldiers give unit commanders large amounts of timely combat information about enemy troops and equipment. Ground surveillance, OPs, and reconnaissance (recon) patrols are useful in collecting information that will confirm or deny the accuracy of previous information. Ground and air recon elements, such as air and ground cavalry (cav) units, are invaluable sources of information. They have unique missions and training which enhance their ability to gather information. Aviation combat elements performing deep operations are good intelligence and BDA gatherers when entering and leaving deep target mission areas. They possess excellent vision and navigation systems. SOF collect and report information beyond the sensing capabilities of tactical collection systems. They are tasked to conduct special recon missions. They verify, by visual observations or other collection methods, data concerning the capabilities, intentions, and activities of the enemy. SOF also collect data concerning the meteorologic, hydrographic, or geographic characteristics of a particular area. Special recon missions include target acquisition, area assessment, and poststrike recon.

Intelligence and Electronic Warfare Systems

All appropriate IEW agencies are given missions through the collection plan prepared by the collection manager at each echelon. The IEW assets are of three general types:

- SIGINT.
- IMINT.
- HUMINT.

Signal Intelligence

SIGINT assets detect and locate the electronic signatures associated with targets. The signatures are caused by the electronic systems (such as radios, radars, and beacons) associated with the C^2 functions of the target. Friendly SIGINT systems search for and intercept the electronic signature. Then they identify the signals on the basis of either the characteristics of the signal or the content of any messages intercepted. The signals are associated with an enemy order-of-battle element. Many tactical SIGINT systems can locate the origin of electronic signatures through DF methods. DF methods have inherent TLEs that result from several factors such as terrain, distance to the target, and system accuracy.

Imagery Intelligence

IMINT assets are located in the aerial exploitation battalion of the corps MI brigade and division MI bn. These assets include airborne and ground-based IMINT sensors such as photography, television, infrared, and moving target indicator (MTI) radar. Targets have

visual and infrared signatures that can be detected (imaged). Imagery analysts study the results of IMINT missions to determine the presence and location of imagery signature. Films and devices exist which can detect the thermal signature of engines, heaters, operating equipment, and so forth. These films and devices can also detect the presence of camouflage. They are used to overcome enemy attempts to conceal his actual locations and intent. Sensors, in UAVs, provide a TA capability previously not available on the battlefield. These sensors can search areas unseen by ground observers and provide accurate and timely locations of enemy elements. The combined arms commander can successfully direct assets to engage the targets. Side-looking airborne radar (SLAR) missions are flown well behind friendly lines. The SLAR can detect the movement of vehicles far beyond the FLOT. However, acquisition range may be limited by the terrain features in the area of operations. Patterns of movement (numbers, directions, and times) are analyzed and collated with other combat information to determine enemy intentions. In some cases, the ending location of enemy movements can be determined. These locations could represent potentially lucrative targets such as enemy assembly areas or logistics facilities.

Human Intelligence

HUMINT is produced by–

- Daily contact with indigenous forces.
- Civilian authorities.
- Local populace.

The MI interrogation teams that are usually at maneuver brigade and higher levels obtain a great deal of HUMINT. The interrogators can be focused on the detection of HPTs. Interrogators are routinely given lists of items that are of intelligence concern. Giving current HPTLs to the interrogators lets them focus on locating HPTs. Long-range surveillance units (LRSUs) and SOF special reconnaissance (SR) teams are another HUMINT source. They can report the presence or absence of enemy at NAIs. The information gained by an LRSU is real-time information and can result in immediate engagement. Army aviation assets provide real-time intelligence and targeting information in close, deep, and rear operations. This information can result in immediate engagement. Civil affairs and PSYOP teams come in contact with many people with valuable intelligence information.

Field Artillery Target Acquisition

Several detection assets are presently organic to the FA at both corps and division.

Field Artillery Battalions

An FA battalion is both a producer and a consumer of combat information. Division artillery DS FA battalions provide maneuver battalion headquarters with an FSE. An FSE is headed by an FSO to help plan, direct, and coordinate fire support operations. The FSE provides a fire support team (FIST) to each maneuver company. Forward observers (FOs) from each FIST are attached to infantry platoons or recon patrols and to establish OPs. They are the grass roots of the FA TA effort. They observe the battlefield to detect, identify, locate, and laser-designate targets for suppression, neutralization, or destruction. They report targeting data and combat information to the maneuver battalion FSO and S2.

The FISTs and FOs are specially equipped for their mission. Their laser range finders provide an accurate distance measurement to a target. With the ground/vehicular laser locator designator (G/VLLD), the FO can determine distance, direction, and vertical angle. He can also laser-designate targets for Army, Navy, Marine Corps, and Air Force laser-guided munitions. The capability of the FIST to provide real-time combat information cannot be over emphasized. The battalion FSO receives information from and passes information to the FIST. The battalion FSO continually exchanges targeting data and combat information with the brigade FSO and the DS FA battalion. The FSO coordinates with the battalion S2 and S3 to identify and verify targeting data and combat information derived from the overall collection effort.

Weapons-Locating Radars

There are two types of weapons-locating radars (WLRs) (AN/TPQ-37 and AN/TPQ-36). The primary mission of the AN/TPQ-37 is to locate low-trajectory indirect fire weapons such as rockets and cannon artillery. However, it can be used to locate mortars. The primary mission of the AN/TPQ-36 is to locate high-trajectory indirect fire weapons such as mortars. It can be used to locate cannon artillery and rockets. Both types of radars locate targets accurately enough for attack. (See FM 6-121.)

Combat Observation/Lasing Teams

COLTS provide a TA capability previously not available on the battlefield. The teams are found in heavy and light divisions and with SOFs. They are equipped to engage targets with laser designators and to act as FOs. However, they work for the brigade FSE. (In this capacity they provide more eyes on the battlefield.)

Air Defense Target Acquisition Assets

The integration of corps and theater AD efforts provides coverage to the areas of interest for all units in the theater. Future capabilities will allow input directly from theater AD assets into division air situation updates. Comparison of AD information with other combat informtion will help to locate major enemy airfields and refueling and/or rearming points. Many of these will be HPTs in support of the commander's scheme of maneuver. Short-range air defense (SHORAD) battalions provide early engagement of enemy air assets. This information is passed from AD units to maneuver elements over frequency modulated (FM) nets or through AD liaison officers. The integration of corps and theater AD efforts enables the collection manager to acquire targets for deep engagements.

Echelons Above Corps and National Assets

When operating as part of a theater Army, the theater MI brigade can provide intelligence to support situation and target development. National assets can provide information useful for targeting purposes. Because of the capabilities of both EAC and national assets, it will be a challenge to receive information quickly enough to be used for immediate targeting. However, both EAC and national systems have direct downlinks to both division and brigade for near-real time targeting.

Joint Assets

Operating in a joint environment the TA assets of other services contribute to land force targeting. The collection management staff requests support from joint assets through the next higher echelon. The Air Force has extensive TA capabilities and is particularly good at locating enemy AD sites. The long-range Air Force assets are good collection assets. Air Force assets include all of the following:

- Pilots (particularly recon pilots).
- Photo imagery.
- Infrared imagery.
- SLAR.
- Low-light-level television.
- Airborne warning and control systems (AWACs).

Joint Surveillance Target Attack Radar System

The J-STARS is a battle management and targeting system which detects, locates, tracks, classifies, and assists in attacking both moving and stationary targets beyond the FLOT. This system supports the–

- Decide function (situation intelligence).
- Detect function (targeting function).
- Deliver function (triggers the delivery of ordnance such as direct attack aircraft or ATACMS/MLRS).

The advanced synthetic aperture radar aboard the J-STARS produces target images which require skilled imagery analysts to make specific identification. J-STARS moving target indicator capability does not provide target identification. Therefore, moving target indicators on the radar screen must be identified by other sources whenever target identification is necessary. J-STARS provides commanders a real-time picture of enemy activity in or near their AOs and helps confirm or deny suspected enemy activity. J-STARS was used with great success during Operation Desert Storm. The Air Force is responsible for the prime mission equipment (PME), which is the platform, molar, and data link. The Army is responsible for the GSM. The GSM consists of tactical data processing and evaluation distribution centers. This equipment links the J-STARS radar (through the data link) to Army C^3 nodes at corps and division levels.

Special Operations Forces

SOF assets can make an invaluable contribution to TA efforts. Deployed Army and Navy SOF can provide a detection capability and conduct terminal guidance operations. SOCCEs can furnish flexible C^2 linkages with general-purpose forces. Depending on the criticality of the target, SOF may even serve as a communication link between deployed SOF and a supporting unit. Army special operations aviation (SOA) and AFSOC aircraft flying in support of SOF can contribute by providing collateral TA collection.

Combined Force Assets

The assets of allies can be valuable contribute to target detection. Liaison officers provide information and access to the capabilities of allied systems and are their interface with the US targeting system. HUMINT from host nation (HN) sources is useful in all environments, but it is particularly relevant during OOTW. Procedures for timely detection of targets jointly with allies must be practiced during exercises whenever possible.

ACQUISITION ASSETS - CORPS

NOMENCLATURE	FUNCTION	PRIME MOVER	REPORTING TIME LINES	UNIT AND QUANTITY	APPROXIMATE RANGE
AN/ALQ-133 Quicklook II Noncommunications identification and collection system.	Noncommunications intercept and DF.	RV-1D.	G2/Downlinks to the EPDS and distributed to the corps ETUT and division THMT in minutes. EPDS can pull it as often as needed in near real-time.	Six systems per corps. To be replaced by Guardrail common sensor (GRCS).	100 km.
AN/USD-9 Improved Guardrail V (IGRV) special purpose detecting system.	Airborne RDF, HF/VHF/UHF intercept and DF.	RC-12D.	Near real-time to CTT; reports provided to multiple interim CTTs at division and corps nodes.	One system (six aircraft) per corps. Will be replaced by GRCS.	100 km.
Commander's tactical terminal (CTT).	Downlink from Guardrail.	N/A	Near real-time.	EAC, corps, and division distribution TBD	N/A
Guardrail common sensor (GRCS)	Integrates IGRV (COMINT) and AQL (ELINT) into single SIGINT system. Adds extremely accurate DF system called Chaals.	RC/12H-K	COMINT/ ELINT/DF reports provided to multiple CTTs at corps, division, and brigade in near real-time.	Two systems (each system has six aircraft) per corps.	250 km from aircraft to data link.
OV-1D (Mohawk) with the AN/APS-94F side-looking airborne radar (SLAR).	Moving target indicators on radar maps (SLAR) or photo.	OV-1D	G2/3 to 5+ minutes real-time. Down link to ground station terminals at corps and ACR.	EAC in 8th Army only.	140 km (SLAR); 90 km (photo).
Pioneer UAV	Live TV video and FLIR real-time to J-STARS, GSM and Pioneer ground control station. Recon, surveillance, targeting and target acquisition, EW, NBC, recon, and communication relay.	5-ton, HMMWV system prime mover.	Near real-time to CGS.	One company, five air vehicles, assigned to US Army Intelligence Center. Available for exercise support and contingency operations.	140 km
UAV - short-range	Live TV video and FLIR real-time to J-STARS, GSM, GCS, and remote video terminal (RVT). Recon, surveillance, target spot/acquisition, EW, NBC recon, and communication relay.	Unnamed	G2/S2 near real-time. Downlinks to 4 GCS and 8 RVT per corps and over 20 J-STARS GSM per corps 8 to 12 hours on station.	Six at division, fielding started FY94. EAC, MI brigade fielding starts in FY96.	200+ km
Imagery processing dissemination station (IPDS) and tactical radar correlator (TRAC)	Receive, process, and exploit digital imagery from national and theater systems.	Semitrailer and 5-ton tractor.	G2/10 to 15+ minutes processing and communication time from target recognition to the ACE.	One system per corps.	N/A
Enhanced tactical users terminal (ETUT)	Receive digital secondary imagery from IPDS; correlate ELINT from EPDS via area communications or Success radio.	Semitrailer.	G2/near real-time.	Fielded to all corps and selected EAC, MI brigades.	N/A

Legend:

ACR	= armored cavalry regiment	**GCS**	= Guardrail common sensor
CGS	= common ground station	**HF**	= high frequency
COMINT	= communications intelligence	**HMMWV**	= high-mobility multipurpose wheeled vehicle
CTT	= commander's tactical terminal	**RDF**	= radio direction finder
ELINT	= electronic intelligence	**TBD**	= to be determined
ETUT	= enhanced tactical user terminal	**THMT**	= tactical high-mobility terminal
FLIR	= forward-looking infared	**UHF**	= ultrahigh frequency
FY	= fiscal year	**VHF**	= very high frequency

ACQUISITION ASSETS - CORPS AND DIVISION

NOMENCLATURE	FUNCTION	PRIME MOVER	REPORTING TIME LINES	UNIT AND QUANTITY	APPROXIMATE RANGE
Joint surveillance target attack radar system (J-STARS)	MTI radar/SAR imagery.	Boeing 707.	Near real-time to GSM.	Two prototypes currently available for contingency operations. GSMs at division and corps. Fielding complete FY97. Objective: 20 systems.	300 km from aircraft to GSM.
J-STARS GSM	Receive, process, and correlate sensor and multi source data from J-STARS, OV-1D, SLAR, and UAV. **Note:** Will be upgraded with GRCS CTT and evolve to the common ground station. Asset steerage, and monitor current. situation.	5-ton, HMMWV, and EFVS.	Near real-time to nodes, brigade through corps.	Six per corps and division to be fielded. 3 to EAC MI bde to be fielded. Fielding started FY93.	NA
AN/TRQ-32(V)2 Receiving Set (Teammate)	HF/VHF/UHF intercept; VHF DF when netted with other TRQ-32s COMINT.	CUCV or HMMWV.	G2/1 to 3+ minutes processing and communication time from signal recognition to the ACE.	Three systems per corps and division. Two systems per ACR.	30 km.
AN/TLQ-17A(V)3 TRAFFIC JAM Countermeasures set with long-range antenna modification, systems is called Sandcrab.	HF/VHF/ECM, HF/VHF intercept.	HMMWV.	N/A	EAC: Three Sandcrab systems at selected MI brigades. Three systems per corps, and heavy, air assault, and airborne divisions. Two per ACR.	30 km.
AN/PRD-11 Man Pack	HF/VHF/UHF intercept; VHF DF when netted with other PRD-10 or TRQ-32s.	Man pack or vehicle.	G2/1 to 3+ minutes processing and communication time from signal recognition to the ACE.	Normally issued ILO PRD-10.	25 km.
AN/PRD-10 Receiving Set (MPRDFS)	HF/VHF/UHF intercept; VHF DF when netted with other PRD-10 or TRQ-32s.	Man pack or vehicle.	G2/1 to 3+ minutes processing and communication time from signal recognition to the ACE.	12 per airborne division; PRD-10 is issued ILO TRQ-30; each FS company has three (total of nine) and the GS company has three (one with each TRQ-32). Six per corps (ABN TEB) (PRD-10/11) ILO TRQ-30. (**Note:** TRQ-30 is phased out.)	25 km.
Counterintelligence Teams	OPSEC, deception, ID enemy collection threat, terrorism counteraction, investigations, report combat information, US forces liaison, personnel screening operations.	Any available.	Near real-time.	Two teams per heavy and air assault division; three per airborne division; four per light division; one per ACR; nine per active corps and eight per inactive.	Main battle area or rear.
Long-range surveillance units (LRSU)	Surveillance, limited recon, target acquisition, damage assessment.	Usually foot or helicopter.	Prearranged communications windows; near real-time.	Six teams per heavy division (LRS detachment); four per light and airborne division (LRS detachment); 18 per corps (LRS company).	Division: 6 days, 15 to 100 km. Corps: 8 days, 80 to 150 km.

ACQUISITION ASSETS - CORPS AND DIVISION (Continued)

NOMENCLATURE	FUNCTION	PRIME MOVER	REPORTING TIME LINES	UNIT AND QUANTITY	APPROXIMATE RANGE
Interrogator teams	Screening and interrogating EPWs; screen and debrief defectors and refugees; screen and exploit captured enemy documents; HN liaison.	NA	Near real-time to G2 and/or J2.	Two teams per heavy and air assault division; eight per light division; three per airborne division; one per ACR; eight GS teams per active corps, five per inactive corps. (Note: *Team* = 3 interrogators.)	Bde holding area, bde and division EPW cage, corps EPW holding facility, theater internment facility, and indefinite.
GSQ-187 Remotely monitored battlefield sensor system (REMBASS)	Seismic/acoustic, magnetic, and passive infrared monitoring and detection.	Man pack or vehicle.	To bde near real-time.	EAC: System at selected MI brigades; five per light, air assault, and airborne divisions.	10 km.

LEGEND: **CUCV** = commercial utility cargo vehicle **ILO** = in lieu of
EFVS = electronic fighting vehicle system **MPRDFS** = man pack radio direction finding system
ID = identification **SAR** = side-looking aperture radar

ACQUISITION ASSETS - DIVISION

NOMENCLATURE	FUNCTION	PRIME MOVER	REPORTING TIME LINES	UNIT AND QUANTITY	APPROXIMATE RANGE
UAV-close range	Recon, surveillance, target spotting and acquisition, EW, NBC; recon communications relay.	Unnamed.	G2 or S2 near real-time; 1 to 6 hours on station.	Division level; fielding starts FY98.	50 km
AN/TSQ-138 Special purpose detecting set (Trailblazer)	Automated radio direction finding; VHF DF; HF/VHF/UHF intercept.	M1015A1 EW systems carrier being changed to 5-ton truck IAW HQ DA directive.	G2/1 to 3+ minutes processing and communication time from signal recognition to the ACE.	One system per heavy division. (Each has five master control stations.)	30 km
AN/PPS-5B Radar set	Moving target indicator.	M113.	G2/1 to 3+ minutes processing and communication time from target recognition to the ACE.	12 per heavy and air assault divisions nine per ACR.	6 km, personnel; 10 km, vehicles.
AN/PPS-15A(V)1 Radar set	Moving target indicator.	Man pack or vehicle.	G2/1 to 3+ minutes processing and communication time from target recognition to the ACE.	12 per light division; nine per air assault and airborne division.	1.5 km, personnel; 3 km, vehicles.
AN/ALQ-151(V)1 Quickfix special purpose countermeasures system	HF/VHF intercept; HF/VHF ECM; VHF DF can net with Trailblazer for DF.	EH-60A Blackhawk.	G2/1 to 3+ minutes processing and communication time from signal recognition to the ACE.	Three per division and ACR.	30 km EA, 50 km ES.
COLT	Target acquisition.	Per MTOE.	Real-time.	Three per FA bn allocated to maneuver brigades.	10 km.
Commander's tactical terminal (CTT-H/R)	Distribution system for GRCS and Air Force TR-1/U-2R.	NA	Near real-time.	Brigade, division, corps TOCs and fire support nodes. Fielding started FY93.	NA.
Ground-based common sensor (heavy and light)	ESM intercept and DF, COMINT/ELINT; ECM jam COMINT; targeting location data.	EFVS (heavy division) or heavy HMMWV (light division)	G2/near real-time	Six per heavy and light division. Fielding starts FY97 or 98.	TBD.

ACQUISITION ASSETS - DIVISION (Continued).

NOMENCLATURE	FUNCTION	PRIME MOVER	REPORTING TIME LINES	UNIT AND QUANTITY	APPROXIMATE RANGE
THMT (Tactical high-mobility terminal)	Division interface for Tencap data; receive digital secondary imagery from IPDS and correlated ELINT via ACUS communications or Success radio from EPDS or other sources.	5-ton or trailing arm drive vehicle (THMT).	Near real-time.	1 per heavy division. System being replaced by MITT.	NA.
Mobile integrated tactical terminal (MITT)	Receive digital secondary imagery from IPDS and correlated ELINT via ACUS communications or Success radio; downsized follow-on to the THMT.	HMMWV.	G2/near real-time.	One per light division; replaces the THMT. (Force package 1 only.)	NA.
Forward Area SID and TRAP-Improved (FAST-I)	Receive digital secondary imagery from IPDS and correlated ELINT via ACUS communications or Success radio; downsized follow-on to THMT.	HMMWV.	Near real-time.	Fielded ILO THMT or MITT.	NA.
ALQ-133 Advanced Quickfix	HF/VHF intercept, DF, ECM.	EH-60A Blackhawk.	G2/near real-time.	MTOE requirement is six aircraft to be fielded at division. Four aircraft per division will be fielded starting FY97.	50 km.
AN/TPQ-36 WLR	Target acquisition (primarily high trajectory).	Per MTOE.	Near real-time.	Three per heavy division in div arty TA batteries. Issued to DS FA bns in light airborne and air assault divisions.	24 km.
AN/TPQ-37 WLR	Target acquisition (primarily low trajectory).	Per MTOE.	Near real-time.	Corps TA detachment: Division	50 km.
OH-58D Kiowa Warrior	Armed recon, target location, and light attack.	OH-58D	Near real-time.	32 per corps ACR; division cav squadrons: 16 per light and heavy divisions, 24 per airborne division, 32 per air assault division; 24 per attack helicoptor bn airborne and light divisions. Also in corps aviation brigade TA recon company.	15 km.
AH-64	Armed recon, target location, and light and heavy attack.		Near real-time	24 per corps and division attack helicoptor bns.	
Recon assets such as cavalry and recon squadrons.	Surveillance and target acquisition.	Per MTOE.	Real-time.	Authorized in heavy divisions.	10 km.
Scouts, patrols, FIST.	Surveillance and target acquisition.	Per MTOE.	Real-time.	Authorized in all divisions.	10 km.

LEGEND: **ACUS** = Army common user system **HQ DA** = Headquarters Department of the Army
ESM = electronic warfare support measure **IAW** = in accordance with

TARGET ATTACK SYSTEMS

Attack assets available to corps and division commanders include all of the following:

- Air Force air support.
- Naval surface fire support and naval air support.
- Field artillery.
- Mortars.
- Attack helicopters.
- Nonlethal electronic attack.

This section summarizes fire support attack and delivery means and provides brief descriptions of their capabilities.

ATTACK ASSETS OUTSIDE THE CORPS

Air Support

Based on Air Force doctrine, the JFACC is required to plan and conduct air operations against enemy forces throughout the theater of operations. The JFACC is responsible for air attack against enemy forces which present the greatest threat to the force and against targets which are most valuable to the enemy. Airmail suitable for delivering ordnance against ground targets are as follows:

F-15E Strike Eagle

This aircraft is a two-seat, dual-role fighter for all-weather air-to-air and deep interdiction missions. It uses the LANTERN system for low-altitude, high-speed penetration and precision attack of targets at night and in all types of weather. Armament includes:

- One internally-mounted 20-mm six-barrel cannon.
- AIM-9 Sidewinder missiles.
- AIM-7 Sparrow missiles.
- Precision-guided air-to-surface munitions (various laser, infrared, or electro-optically-guided weapons).
- General-purpose bombs and cluster munitions.

It can carry payloads up to 24,500 pounds.

F-16 Fighting Falcon

This aircraft is a single-seat, multirole aircraft. It is capable of performing precision strike, CAS, night attack, and beyond-visual-range interception missions. It employs both air-to-air and air-to-surface weapons and can use the LANTERN system for all-weather surface attack. Armament includes the following:

- One internally-mounted 20-mm six-barrel cannon.
- AIM-9 Sidewinder missiles.
- AIM-7 Sparrow missiles.
- HARM missiles.
- Precision-guided air-to-surface missiles (some laser, infrared, or electro-optically-guided weapons).
- General-purpose bombs.
- Cluster munitions.

It can carry payloads up to 12,000 pounds.

F-111 Aardvark

This aircraft joins the F-15E as one of two long-range, around-the-clock interdiction fighters used by the Air Force. One version can carry the Pave Tack system for a day or night capability to acquire, track, and designate ground targets for laser, infrared, and electro-optically-guided weapons. Armament includes the following:

- Aim-9 Sidewinder missiles.
- Various precision-guided air-to-surface munitions.
- General-purpose bombs.
- Cluster munitions.

It can carry payloads up to 25,000 pounds.

A-10 Thunderbolt II

Designed specifically for the CAS mission, the A-10 offers a combination of large military payload, long loiter time, and wide combat radius. Armament includes the following:

- One internally-mounted 30-mm seven-barrel Gatling gun.
- AIM-9 Sidewinder missiles.
- Maverick air-to-surface missiles.
- General-purpose bombs.
- Cluster munitions.

It can carry payloads up to 16,000 pounds.

F-117A Nighthawk

This aircraft was the frost production combat type designed to exploit low-observable technology. It operates at subsonic speed and can employ a variety of weapons. It is equipped with sophisticated navigation and attack systems that increase mission effectiveness and decrease pilot workload. Armament includes up to 5,000 pounds of precision-guided munitions carried internally.

B-52 Stratofortress

B-52s can be assigned to support conventional operations. They can travel great distances on short notice carrying diversified payloads. They are capable of delivering a wide range of weapons. Armament in a nonnuclear role includes the following:

- Up to 51,500 pounds of bombs or cluster munitions.
- Up to 12 air-launched cruise missiles.
- Up to eight Harpoon antiship missiles.

B-1B Lancer

In addition to its nuclear mission, the B-lB has the capability to carry conventional gravity bombs. Armament in a nonnuclear role includes the following:

- Up to 84,500 pounds of bombs.
- Up to twenty-four 2,000-pound bombs.
- Up to eight air-launched cruise missiles.

B-2A Spirit

The B-2 employs low-observable stealth techniques to minimize the possibility of detection. Current plans emphasize the conventional capabilities of the B-2. Armament in a conventional role consists of eighty 500-pound bombs or various other conventional weapons.

AC-130H/U Specter

Two versions of the AC-130 are operated by the Air Force SOC. The AC-130H is equipped with a digital fire-control computer and the following armament:

- Two fixed 20-mm Vulcan cannons.
- One trainable 40-mm cannon.
- One trainable 105-mm howitzer.

The AC-130U will replace the two 20-mm cannon with one trainable 25-mm cannon while retaining the other weapons. All weapons can be slaved to sensors which permit night or adverse weather operations.

Typical Targets for Air Force Weapons

The following table provides information on the types of targets to be attacked by Air Force systems.

WEAPON	METHOD OF ATTACK	TYPICAL TARGETS	REMARKS
Cannon	10- to 30-degree dive, low-level.	Troops in open, POL, and wheeled or tracked vehicles.	AP, HE warheads. Very accurate. Must hit to kill.
Bombs	Level to 45 degree, high- or low-angle.	Armor (concentrations only), area targets, and concrete field defenses.	Larger damage envelope results. Bombs must be delivered high angle or in a dive, except retarded lay-down at low altitude. HE warheads.
CBU		Groups of armor, other vehicles, and personnel, particularly in the open.	AP (hollow charge) fragmented casing area weapon.

LEGEND: AP = armor piercing
CBU = cluster bomb unit
HE = high explosive

Naval Surface Fire Support

Naval surface fire support is fire support delivered by ships to support troop and related surface and air operations. Each fire support ship will be assigned a tactical mission that is a specific fire support requirement. The mission can be either DS or GS. Fire support ships are not assigned missions of reinforming or general support reinforcing. The size and physical dimensions of a ship affect both its ability to maneuver and its ammunition capacity. The draft of a ship determines how close it can proceed to the shoreline and, therefore, impacts on weapons ranges. The proportion of the armament on the ship that is usable for fire support operations is a significant factor. The nature of the fire control system of the ship determines the number of fire missions that can be conducted simultaneously. The following paragraphs provide some general information on ships suited for fire support.

Destroyers

The destroyer (DD) is the most available ship for naval gunfire support. DDs are usually assigned fire support missions in DS of battalion-sized units. Spruance class destroyers have two 5-inch/54 guns.

Guided Missile Cruisers

Guided missile cruisers (CGs) are assigned a primary mission of anti-air warfare (AAW). They can be employed in the naval surface fire support role when needed. Depending on class, armament is one or two 5-inch/54 guns.

Guided Missile Destroyers

Guided missile destroyers (DDGs), depending on class, have as armament one or two 5-inch/54 guns.

Naval Surface Fire Support Weapons Characteristics

The following table provides weapons characteristics of naval surface ships used in fire support.

SHIP	WEAPON	NO OF RDS	MAX RG (km)**
DD	5-inch/54	600*	23/29 (RAP)
CG	5-inch/54	1200	23/29 (RAP)
DDG	5-inch/54	600*	23/29 (RAP)

LEGEND: RAP = rocket-assisted projectile

NOTE: Ships in these classes with vertical launch systems will carry Tomahawk missiles.
* per gun
** First figure is with conventional round; second figure is with RAP.

Naval Surface Fire Support Considerations

The following paragraphs discuss important features to consider when employing naval gunfire.

- **Air and naval gunfire liaison company.** The ANGLICO is a Marine Corps unit specifically designed for support of division-sized units. It provides control and liaison for employment of naval surface fire support and Navy and Marine Corps CAS. The unit is normally attached to an Army division for a specific operation.
- **Tactical missions.** Naval surface ships are assigned one of two tactical missions when supporting ground operations.
  - DS. A ship in DS (normally to a battalion) fires both planned and on-call missions. On-call missions are requested and adjusted by shore fire control parties, air spotters, and firepower control teams (FCTs).
  - GS. Ships assigned to a GS mission support brigade-sized or larger units. Fires are normally adjusted by air observers. The ship can have fires assigned by a liaison officer to a battalion shore fire control party or FCT.
- **Capabilities.** The capabilities of naval gunfire are:
  - Best gun-target line can be selected within limitations imposed by hydrography.
  - Ships have high rates of fire.
  - Accuracy of weapon systems is better laterally than in range.
  - Ships have a variety of weapons and munitions.
  - Weapons have high initial velocity and flat trajectory for direct fire against fortifications.
- **Limitations.** The limitations of naval gunfire are:
  - Ship-to-shore communications are dependent on radio.
  - The gun-target line changes when the ship is underway.
  - Inaccuracies in unobserved fires and initial salvos occur in areas where navigational aids are lacking or obscured by poor visibility. (Employment of radar beacons ashore can minimize this limitation.)
  - Ships have limited magazine capacity of fire support ships.
  - Firing positions may be limited by unfavorable hydrographic conditions or the presence of mines.
  - The flat trajectory of guns are relatively unsuitable for the attack of targets in defiladed positions. Attack of targets close to front-line troops is restricted when the gun-target line passes over friendly troops.

Note: The dispersion pattern of naval gun is elliptical with the long axis of the pattern along the direction of fire. This is both a capability and a limitation. This pattern is more effective when fire is brought to bear on the long axis of a target. It also allows fire to be brought close to friendly front lines when the gun-target line parallels the front lines.

Naval Offensive Air Support

Naval offensive air support includes CAS and deep air support (DAS). It is provided by the Navy and Marine Corps aircraft to forces either afloat or ashore. While combat air operations for land forces are habitually associated with the Air Force, there are times when Navy or Marine Corps air is available to support land operations. When Marine Corps or Navy air support is available, a Marine Corps TACP or ANGLICO FCT will be provided at battalion through division levels. The composition and complement of carrier air wings vary in accordance with their missions and the capabilities of the carriers from which they operate. The following paragraphs provide information on naval attack aircraft available to a carrier air wing.

F-18

The F-18 is a multimission, carrier-based aircraft used as an AD fighter and as an attack aircraft with a bomb load. Armament includes the following:

- Sidewinder and Sparrow missiles.
- 20-mm cannon.
- HARM missiles.
- General-purpose bombs.
- Rockets.
- Mines.
- Walleye, Maverick, and Harpoon missiles.

It can carry a maximum payload of 16,000 pounds.

A-6

The A-6 is designed for attack missions against sea and land targets under day and night, all-weather conditions. It can attack with or without visual reference to the target. Armament includes the following:

- Bombs.
- Mines.
- Special weapons.
- Missiles.
- Rockets.
- Harpoon missiles.
- AIM-9 Sidewinder missiles.
- General-purpose and cluster bombs.

It can carry a maximum payload of 18,000 pounds.

AV-8B

The AV-8B is a subsonic, high-performance aircraft capable of operating from carriers, expeditionary airfields, and remote tactical landing sites. It is found in the MAGTF. It is capable of CAS, interdiction, armed recon, and AAW operations. Armament includes the following:

- 8,000 pounds of external ordnance.
- 25-mm internal gun.

AH-1W

The AH-1W performs offensive air support (OAS), armed recon, and armed escort. It can operate from carriers, expeditionary airfields, and remote tactical landing sites. Endurance is 2 hours with an average speed of 120 knots. Armament includes the following:

- Tube-launched, optically tracked, wire-guided missile (TOW).
- Hellfire missile.
- 5-inch and/or 2.75-inch rockets.
- 20-mm cannon.
- Fuel-air explosives (FAE).

ATTACK ASSETS WITHIN THE CORPS

Field Artillery

The most common attack asset within the corps and below is field artillery. It can attack targets over a wide range and depth, in all types of weather, day or night. Below is a table listing the more important characteristics of field artillery weapons found at various levels within the corps.

FIELD ARTILLERY WEAPONS CHARACTERISTICS

SYSTEM	MAXIMUM RANGE HE and RAP	RATE OF FIRE	AMMUNITION	FUSES	REMARKS
105-mm Howitzer, M101A1, Towed	Rg : HE 11,000 m RAP 14,500 m	3 rounds per minute (RPM).	HE, WP, illum, HEP, HC, HEAT, ICM APERS	PD, VT, BD, MT, MTSQ, CP	Used by USMC and 6ID for contingency operations.
105-mm Howitzer, M119, Towed	RG: HE 14,000 m RAP 19,500 m	3 RPM.	HE, WP, illum, HEP, HC, AP, ICM	PD, VT, BD, MT, MTSQ, CP	Replaces M102 howitzer used in light inf, airborne air assault divisions.
155-mm Howitzer, M109A3, SP	RG: HE 18,100 m RAP 23,500 m	1 RPM.	HE, ICM, Cphd, HC, DPICM, illum, WP, ADAM, RAAMS	PD, VT, MTSQ, CP, MT	Provides DS for armored and mechanized divisions and the ACR.
155-mm Howitzer, M190A4/A5, SP	RG: With M203 charge 30,000 m.	Higher rate of fire than M109A2/A3.	Same as M109A3.	Same as M109A3.	Same cannon system as M109A6 Paladin.
155-mm Howitzer, M109A6, SP Paladin	RG: 30,000 m	Higher rate of fire than M109A2/A3.	Same as M109A3.	Same as M109A3.	Improved rate of fire and on board position and navigation system.
155-mm Howitzer, M198, Towed	RG: HE 24,000 m RAP 30,000 m	2 RPM.	Same as M109A3.	Same as M109A3.	Primary USMC system. Also employed in active corps artillery, light artillery, and RC in arty bde and corps arty.

FIELD ARTILLERY WEAPONS CHARACTERISTICS (Continued)

SYSTEM	MAXIMUM RANGE HE and RAP	RATE OF FIRE	AMMUNITION	FUSES	REMARKS
203-mm Howitzer, M110A2, SP	RG: HE 22,900 m RAP 30,000 m	0.5 RPM.	HE, HES, ICM, DPICM	PD, VT, MTSQ, CP, MT	Employed in GS of friendly units to include counterbattery and SEAD.
227-mm MLRS	RG: 30,000 m	12 RPM.	DPICM	Time	MLRS is a free-flight, area fire artillery rocket system. Primary missions are counterfire and SEAD.
ATACMS	RG: 165 km	Classified.	APAM	NA	ATACMS is optimized to attack soft-fixed and semifixed targets. Primary missions include tactical SSM sites, AD systems, C^3, and logistics.

LEGEND:

ADAM	= area denial artillery munitions	**ID**	= infantry division
APAM	= antipersonnel, antimaterial	**illum**	= illumination
APERS	= antipersonnel	**inf**	= infantry
BD	= base detonating	**m**	= meter
CP	= concrete-piercing	**MT**	= mechanical time
Cphd	= Copperhead	**MTSQ**	= mechanical time superquick
HC	= hexachloroethane (smoke)	**PD**	= point-detonating
HEAT	= high-explosive antitank	**RAAMS**	= remote antiarmor mine system
HEP	= high-explosive plastic	**SSM**	= surface-to-surface missile
HES	= high-explosive spotting	**VT**	= variable time
ICM	= improved conventional munitions	**WP**	= white phosphorus

Mortars

In addition to field artillery, mortars provide fire support to the maneuver forces. Mortars are the organic indirect fire weapons of maneuver units; as such, they are controlled by the maneuver units. The FIST chief and the battalion FSO are normally responsible for integrating mortars into the overall fire support plan. Mortar fires and munitions are employed in accordance with overall fire support needs and the battle action. US mortar capabilities are as follows:

MORTAR

MORTAR	MAX RG(m)	MIN RG(m)	MAX RPM	ST RPM	AMMO	FUZES
60 mm	3,500	50	30	15	HE, WP, illum	Multi-option
81 mm	4,789	70	20	8	HE, WP, illum	PD, VT
107 mm	6,800	920	18	3	HE, WP, illum	VT, PD, time
120 mm	7,240			4	HE, smoke, illum	

LEGEND: **ST** = sustained

Attack Helicopters

Attack helicopters provide many of the favorable attributes of air attack platforms and they are usually more readily available to corps maneuver units. The following paragraphs provide information on attack helicopters commonly found within the corps.

AH-1F Cobra

The primary mission of the Cobra is to destroy enemy forces. It is equipped with TOW missiles, 2.75-inch rockets, and a 20-mm cannon which make the Cobra an effective weapon system against a variety of targets. Endurance is 2 hours with an average speed of 120 knots. The Cobra will be phased out of the Army inventory by the turn of the century.

AH-64A Apache

The Apache is the primary attack helicopter in the Army. It has day and night capability and the Hellfire missile system. The principal mission of the Apache is destruction of enemy mechanized forces. However, with additional armament of the 2.75-inch rockets and 30-mm cannon, the Apache is capable of attacking a wide variety of soft targets. Endurance is 1 hour and 45 minutes with an average speed of 140 knots.

OH-58D Kiowa Warrior

The Kiowa Warrior is a multipurpose, light helicopter with the primary mission of armed recon. It has day and night capabilities; it can operate across the operational spectrum and in multiple mission profiles. The weapon systems of the Warrior can be configured for air-to-air Stinger and Hellfire missiles, 2.75-inch rockets, and .50 caliber machine gun.

Attack Helicopter Weapons Capabilities

The capabilities of weapon systems used by attack helicopters are listed below.

WEAPON SYSTEM	EFFECTIVE MAX RG (m)	MAX LOAD (rds)		
		AH-64	AH-1	OH-58D
2.75-inch rockets	9,300	76	76	14
20-mm cannon	1,500		750	
30-mm cannon	3,000	1,200		
.50 cal machine gun	2,000			513
TOW missile	3,750		8	
Hellfire missile	5,000+	16		4
Stinger missile	5,000+			4

Nonlethal Attack Systems

Nonlethal attack is the use of electronic warfare measures, specifically electronic attack (EA) or jamming. Nonlethal attack must be thoroughly integrated in the overall fire support plan so that it complements the use of lethal fires in the commander's intent. Jamming is usually applied to C^2 nodes, ADA nets, and FDC nets to confuse the enemy at critical times and places on the battlefield. The Army has limited EA systems and often relies on the Air Force to supplement our requirements for nonlethal attack.

AN/TLQ-l7(V)3-Traffic Jam

The Traffic Jam is a mobile VHF-EA system designed for surveillance or jamming of ground and airborne communications. It is mounted in an S-250G shelter and powered by the vehicle engine. The system can store up to 255 protected or targeted frequencies. A mount for a long periodic antenna (LPA) is on the driver's side of the shelter. The system produces 550 watts of effective radiated power (ERP). Three systems are authorized at division level.

AN/ALQ-l51(V)2 Quickfix (EH-60A Configuration)

The Quickfix is a special-purpose countermeasures system. It is found at the division level in the aviation brigade. Usually, the system is OPCON to the MI battalion when supporting a heavy division. The EW mission equipment includes electronic support (ES) and electronic attack (EA) equipment. It can be used to receive, locate, and selectively jam very high frequency (VHF) communications equipment. The Quickfix can operate separately or with the AN/TSQ-138 Trailblazer for enhanced DF capabilities. Each division and ACR has three systems. The ALQ-133 Advanced Quickfix with enhanced capabilities will be fielded in FY97.

APPENDIX C

EXAMPLE FORMATS AND TARGET REPORT

The targeting products developed during the targeting process are actually tools. They are used by the commander, the targeting team, and supporting and supported units. The products allow them to control and synchronize targeting in an effective and efficient way. There are no prescribed formats which must be used. Each unit will develop tools that work best for them. Factors to consider in developing formats are as follows--

- *Type and level of the command.*
- *Operating environment.*
- *Assets available.*
- *Missions.*
- *SOPs.*

Regardless of the formats used, the decide, detect, deliver, and assess methodology associated with the command decision cycle must be followed.

The purpose of this appendix is to provide a menu of formats. They maybe copied and used as is, or the targeting team can modify them to suit the needs of the command. Also provided is a sample target report format which can be used or modified as desired.

These formats are not yet integrated into supporting C^4I systems such as tactical fire direction system (TACFIRE), AFATDS, Warrior, and ASAS. The need for automation support is apparent and emerging. C^4I systems will be asked to incorporate similar targeting formats.

HIGH-PAYOFF TARGET LIST

The modified HPTL below is the basic format described in Chapter 2.

HIGH-PAYOFF TARGET LIST

EVENT OR PHASE: _____

PRIORITY	CATEGORY	TARGET

TARGET SELECTION STANDARDS

Target selection standards (see the format below) are comprised of the essential elements listed below:

- HPT. This refers to the designated HPTs which the collection manager is tasked to acquire.
- TIMELINESS. Valid targets are reported to attack systems within the designated timeliness criteria.
- ACCURACY. Valid targets must be reported to the attack system meeting the required TLE criteria. The criteria is the least restrictive TLE considering the capabilities of available attack systems.

EXAMPLE TARGET SELECTION STANDARDS MATRIX (Format)

HPT	TIMELINESS	ACCURACY

EXAMPLE TARGET SELECTION STANDARDS MATRIX (Completed)

HPT	TIMELINESS	ACCURACY
COPs	3 hrs	150 m
RISTA	30 min	150 m
2S3	30 min	500 m
M-46	30 min	500 m
ADA	15 min	500 m
CPs	3 hrs	500 m
ammo	6 hrs	1 km
maneuver	1 hr	150 m

NOTE: This is the example used in Chapter 2.

ATTACK GUIDANCE MATRIX

The AGM provides guidance on what HPTs should be attacked and when and how they should be attacked. The AGM consists of the following elements:

- HPTL. The HPTL is a prioritized list of HPTs by phase of the operation.
- WHEN. The WHEN cohn indicates the time the target should be engaged. (See the legend below the example.)
- HOW. This column indicates the attack system that will engage the target.
- EFFECT. The desired effects on the target or target system are stated in this column.
- REMARKS. Remarks concerning whether or not BDA is required, whether coordination must take place, and so forth are indicated in this column.

EXAMPLE ATTACK GUIDANCE MATRIX (Format)

PHASE/EVENT: _____

HPTL	WHEN	HOW	EFFECT	REMARKS

LEGEND: WHEN(I) = IMMEDIATE; WHEN(A) = AS ACQUIRED; WHEN(P) = PLANNED

EFFECT (S) = SUPPRESS; EFFECT (N) = NEUTRALIZE; EFFECT (D) = DESTROY; EFFECT (EW) = JAMMING or other OFFENSIVE EW.

EXAMPLE ATTACK GUIDANCE MATRIX (Completed)

PHASE/EVENT: Attack through the security zone

HPTL	WHEN	HOW	EFFECT	REMARKS
COPs	P	GS arty	N	Plan in initial prep
RISTA and OPs	P	GS arty	N	Plan in initial prep
2S1 and 2S3	P	MLRS	N	Plan in initial prep
2S6, SA9 and SA13	P	GS arty	S	SEAD for avn ops
Regt CP	A	MLRS	N	
Reserve bn	P	avn bde	D	Intent to attack reserve bn in EA HOT

LEGEND: WHEN(I) = IMMEDIATE; WHEN(A) = AS ACQUIRED; WHEN(P) = PLANNED

EFFECT (S) = SUPPRESS; EFFECT (N) = NEUTRALIZE; EFFECT (D) = DESTROY; EFFECT (EW) = JAMMING or other OFFENSIVE EW.

NOTE: This is the example used in Chapter 2.

SENSOR/ATTACK MATRIX

The sensor/attack matrix is a tool used to determine if organic sensors and attack systems can acquire and attack the HVTs for each critical event or phase of the battle.

EXAMPLE SENSOR/ATTACK MATRIX (Format)

EVENT:

SENSOR/ATTACK SYSTEM MATRIX

HVT									HVT
SENSOR									ATK SYSTEM

S: Sensor with capability to acquire the target. A: Attack system with capability to engage the target.

EXAMPLE SENSOR/ATTACK MATRIX (Completed)

EVENT: ATTACK THROUGH SECURITY ZONE

EXAMPLE SENSOR/ATTACK SYSTEM MATRIX

HVT	COPS RISTA	M46	2S3	MAIN FWD CPs	AMMO	MANEUVER	HVT
SENSOR							ATK SYSTEM
EPW team					S	A	Mnvr bde
CI team			S		S		AHB
LRSD	S A						D/A 155-mm SP
TRQ-32	S	A	A	S			D/A MLRS
ALQ-151		A	A	S			C/A MLRS
PPS-5				A			EW: TLQ-17
OH-58D	S			A			
TLQ-17							EW: ALQ-151
Q36 CMR			S			A	CAS: 20/day

S: SENSOR A: ATTACK

NOTE: This is similar to the example in Chapter 2. Use additional sheets as necessary.

THE HIGH-PAYOFF TARGET LIST AND ATTACK GUIDANCE MATRIX

On this page and on page C-6 are examples of two different formats for HPTLs and associated AGMs. These examples are simpler than those in Chapter 2 and combine the formats. This allows the targeting team to specify HPTs in priority order with as much detail as desired. It also allows the team to immediately specify the **when, how,** and **restictions** information for attack of the HPTs. The HPTL and AGM will likely change as the battle progresses from one phase or critical event to another. Therefore, a separate HPTL and AGM can be prepared for each phase of the battle.

EXAMPLE HPTL-AGM OPTION 1 (Format)

EVENT OR PHASE: _____

HIGH-PAYOFF TARGET LIST	ATTACK GUIDANCE - WHEN, HOW, RESTRICTIONS

EXAMPLE HPTL-AGM OPTION 1 (Completed)

EVENT OR PHASE: Attack through security zone.

HIGH-PAYOFF TARGET LIST	ATTACK GUIDANCE - WHEN, HOW, RESTRICTIONS
COPs	Prep, A, N, cannon and/or rocket.
RISTA	Prep, A, N, cannon and/or rocket.
2S3	Prep, I, N, cannon and/or rocket.
M46	Prep, I, N, cannon and/or rocket. Use corps assets beyond PL Diamond.
ADA	SEAD, P, S
CPs	Prep, A, D
ammo	Prep, A, D
maneuver and recon patrols	Prep, A, N

LEGEND: WHEN(I) = IMMEDIATE; WHEN(A) = AS ACQUIRED; WHEN(P) = PLANNED; HOW (S) = SUPPRESS; HOW (N) = NEUTRALIZE; HOW (D) = DESTROY

Prep: Include in preparation fires.

NOTE: Information for this example is from the sensor/attack matrix example in Chapter 2.

EXAMPLE HPTL-AGM Option 2 (Format)

PRIORITY	CATEGORY	HPTs	WHEN	HOW	COMMENTS

LEGEND: WHEN(**I**) = IMMEDIATE; WHEN(**A**) = AS ACQUIRED; WHEN(**P**) = PLANNED

HOW (**S**) = SUPPRESS; HOW (**N**) = NEUTRALIZE; HOW (**D**) = DESTROY; HOW (**EW**) = JAMMING or other OFFENSIVE EW.

EXAMPLE HPTL-AGM Option 2 (Completed)

PRIORITY	CATEGORY	HPTs	WHEN	HOW	COMMENTS
1	ADA	SA-8, SA-11, SA-15	A/P	N	
2	FIRE SPT	Arty CP MRL, C/B wpns	I	N/EW	Coord with ECM
3	ENGINEER	Bridging units, pontoons	A	N	
4	C^3	MRR, MRD CP	A	N/EW	Coord with ECM
5	MANEUVER	1st Ech/lead div	A	N	
6	RISTA	Fwd intercept DF nodes	I	N	
–	NUKE/CHEMICAL		I	D	Need BDA
–	REC		A	N	Not HPT
–	CLASS III POL		A	N	Not HPT
–	CLASS V AMMO		A	N	Not HPT
–	CLASS IX MAINT		A	N	Not HPT
–	LIFT		A	N	Not HPT
–	LOC		A	N	Not HPT

LEGEND: WHEN(**I**) = IMMEDIATELY; WHEN(**A**) = AS ACQUIRED; WHEN(**P**) = PLANNED

HOW (**S**) = SUPPRESS; HOW (**N**) = NEUTRALIZE; HOW (**D**) = DESTROY; HOW (**EW**) = JAMMING or other OFFENSIVE EW.

arty = artillery
C/B = counterbattery
ech = echelon
ECM = electronic countermeasures
MRD = motorized rifle division
MRL = multiple rocket launcher
MRR = motorized rifle regiment

COMBINED HIGH-PAYOFF TARGET LIST-TARGET SELECTION STANDARDS-ATTACK GUIDANCE MATRIX

The doctrinal version of the AGM can be modified to make it more useful and practical. The next format combines all three formats discussed in Chapter 2 into one format. The modified HPTL-TSS-AGM is focused on exclusively attacking HPTs. It can be completed in minutes and can be formatted in the MCS to allow for immediate transmission to all who need it.

The CATEGORY column on the AGM is too generic to be useful. In the combined version, specific HPTs (according to phase, echelon, and so forth) are listed across the top. This sends a clear message that only HPTs will be attacked. If we accept the premise that the destruction of HPTs will defeat the enemy (for example, preclude successful completion of his mission), then we must concentrate our limited resources only on HPTs.

Down the left side, the attack systems available to the division and crops are listed. This allows for quick reference to determine which assets are available.

The WHEN column on the old AGM is also unnecessary if we shoot only HPTs. The distinction between the terms *as acquired* and *immediate* becomes blurred to the point that they are indiscernible.

The HOW column loses most of its utility because the terms *suppress* and *neutralize* are too subjective for combined arms commanders and FSCOORDS. As previously stated, if we are focused solely on HPTs, the destruction of those HPTs is what will result in the defeat of the enemy.

In the modified version of the matrix each block contains the TSS, numbered 1 through 4, for the following information

- (1) Required TLE. (For example, 100 m, 250 m.)
- (2) Required target size. (For example, battery, battalion.)
- (3) Activity of the target. (For example, moving or stationary.)
- (4) Time of acquisition. (For example, how old can the spotting be? 30 minutes? 1 hour?)

When these criteria are met, the applicable attack system(s) is notified to engage the target. In the case of targets that qualify for attack by more than one system, attack systems are prioritize. The priority is listed in the upper right comer of the matrix block. (In the completed HPTL-TSS-AGM on page C-9, reinforcing artillery is the second priority for attacking the FA units listed as HPT number 1.)

The REMARKS column along both axis allows for the discussion of restrictions, constraints, or restraints involving HPTs or attack systems. (For example, ATACMs may only be used on semifixed or soft fixed targets.)

The phase of the operation and an effective DTG are included to eliminate confusion over which version is current.

EXAMPLE HPTL-TSS-AGM (Format)

PHASE: _____ DTG: _____

HIGH-PAYOFF TARGETS

	PRIORITY / DESCRIPTION				REMARKS
ATTACK SYSTEM	1 2 3 4 ☐				
	1 2 3 4 ☐				
	1 2 3 4 ☐				
	1 2 3 4 ☐				
	1 2 3 4 ☐				
	1 2 3 4 ☐				
	1 2 3 4 ☐				

REFERENCE:

TSS

1. Required TLE.
2. Size.
3. Activity.
4. Time acquired.

☐ Priority of attack

EXAMPLE HPTL-TSS-AGM (Completed)

PHASE: II DTG: 030530 Feb 92

HIGH-PAYOFF TARGETS

PRIORITY		1	2	3	4	REMARKS
DESCRIPTION		FA DAG+AAG 2S3, 5, 7	ADA SA-6, -8, -11	Maneuver co size	C^3 Rgmt-Div CPs	
ATTACK SYSTEM	DS FA	1 100 m 2 Btry 3 Stat 4 1 hr [5]				
	R ARTY	1 100 m 2 Btry 3 Stat 4 1 hr [2]				
	MLRS	1 100 m 2 Btry 3 Stat 4 1 hr [1]				
	ATACMS	1 100 m 2 Btry 3 Stat 4 1 hr [1]				Must req from corps.
	OEW	1 1 km 2 Btry 3 Stat/ Move 4 1 hr [6]				
	CAB	1 500 m 2 Btry 3 Stat 4 1 hr [3]				
	CAS	1 500 m 2 Btry 3 Stat 4 1 hr [4]				

REFERENCE:

TSS

1. Required TLE.
2. Size.
3. Activity.
4. Time acquired.

[ ] Priority of attack

LEGEND: stat = stationary

TARGET SELECTION STANDARDS WORKSHEET

The form on the next page incorporates TSS into a document which can be used to track and confirm or deny targets generated by each sensor source. The column headings are described below:

- HPT. This column is used to list HPTs.
- SOURCE. This column is used to list the particular sensor agent.
- TARGET LOCATION. This column is used to record the target by grid location.
- (ACCURACY) TLE. This column lists the reliability of the sensor, normally stated in meters.
- TIME OF TARGET. This column is used to record the DTG the sensor acquired the target.
- TIME LIMIT. This column is used to tell the staff how old the acquisition can be and still be attacked.
- (VALIDITY) CONFIRMED. In this column, any confirmation by a second source is recorded by using YES or NO. Confirmation by another sensor may not be necessary depending on the sensor.
- CLEARANCE CLEARED. This column is used to record who or what agency cleared the target for attack. This is especially critical where the potential for fratricide exists.

EXAMPLE TSS WORKSHEET (Format)

HPT	SOURCE	TARGET LOCATION	(ACCURACY) TLE	(TIMELINESS)		(VALIDITY) CONFIRMED	CLEARANCE CLEARED
				TIME OF TARGET	TIME LIMIT		

TARGETING SYNCHRONIZATION MATRIX

The targeting synchronization matrix (TSM) has been successfully used to synchronize targeting by assigning responsibilities to detect, deliver, and assess attacks on specific HPTs. The HPTs are listed in priority by category under the DECIDE column. Units and agencies are listed under the DETECT, DELIVER, and ASSESS columns across from the specific HPTs for which they are responsible. As responsibilities are fixed, the asset envisioned to be used is also indicated. This provides the targeting team a check to ensure all assets are used and that assets or agencies are not overtaxed. This form could also be prepared for a specific event or for each phase of the battle.

EXAMPLE TSM (Format)

DECIDE			DETECT		DELIVER		ASSESS	
P	Category	HPTs	Agency	Asset	Agency	Asset	Agency	Asset

EXAMPLE TSM (Completed)

DECIDE			DETECT		DELIVER		ASSESS	
P	Category	HPTs	Agency	Asset	Agency	Asset	Agency	Asset
1	Fire Support	M46 Astros/ BM-21/ FROG 2S5 --- D-20,D-30 --- Atk Hel	Div arty --- G2 --- 313 MI --- Div arty --- 3-4 ADA	Q-36, Q-37 --- EAD assets --- Quickfix TO-32 --- Q-36, Q-37 --- Organic National	1-Div arty 2-Avn --- Div arty --- 3-4 ADA Div arty	1-Arty, MLRS --- Arty, MLRS --- Organic Arty, MLRS	Avn --- G2 --- 313 MI --- 3-4 ADA	INFLTREP --- Analysis --- Quickfix --- Organic
2	ADA	MR II SA-6, -8, -13 ZSU-23, S16	G2	Tencap, EAD ELINT	Div arty --- G3/EWO	SEAD Arty, MLRS --- EF-111, F4G	G2	Tencap, EAD ELINT
3	RISTA	ARK-1 --- Patrols, OPs	Air Force --- G2 --- Bde	--- EAD ELINT --- Organic	Div arty --- Bdes	Arty, MLRS --- Organic	Air Force --- G2 --- Bde	INFLTREP --- EAD ELINT --- Organic
4	MANEUVER	3-47 AR, 15th Mech Bde,14th Mech Bde, 3d Recon Bn 2d Mtze Bn	1-17th Cav --- G2 --- 2d Bde --- 313 MI	Organic --- LRS,J- STARS SLAR --- Organic --- Quickfix O-32	G3/EWO (313) --- Div arty --- Avn	Quickfix TLQ-17 --- Arty, MLRS --- AH-64	313MI --- G2 --- Avn	Jamming Eff Reps --- LRS,1-17th Cav,2d Bde Spot reps --- Pireps

LEGEND:
atk hel = attack helicopter
EAD = echelons above division
eff reps = effective reports
INFLTREP = in flight reports
mech = mechanized
mtze = motorized
pireps = pilot reports
spot reps = spot reports

DELIVERY STANDARDS MATRIX

The delivery standards matrix (DSM) provides criteria for the attack of HPTs in each phase of the battle. It also facilitates objective decision-making for attacking targets at the lowest level possible. Key personnel, such as the FAIO, FSE target analyst, and div arty FDO, all refer to the matrix. When HPTs are identified, they are automatically engaged if they meet the criteria established by the matrix. The matrix provides instructions for each HPT for each phase of the battle concerning the following:

- TLE.
- Size of the target.
- Target activity.
- Time of acquisition.

EXAMPLE DSM (Format)

Category	HPTs	Target Location Error			Size of Unit			Stationary/Move			Time (of Last Verification)		
		Arty DS/R GS/ GSR	CAS/ AI	Atk Hel	Arty DS/R GS/ GSR	CAS/ AI	Atk Hel	Arty DS/R GS/ GSR	CAS/ AI	Atk Hel	Arty DS/R GS/ GSR	CAS/ AI	Atk Hel

EXAMPLE DSM (Completed)

Category	HPTs	Target Location Error			Size of Unit			Stationary/Move			Time (of Last Verification)		
		Arty DS/R GS/ GSR	CAS/ AI	Atk Helo	Arty DS/R GS/ GSR	CAS/ AI	Atk Helo	Arty DS/R GS/ GSR	CAS/ AI	Atk Helo	Arty DS/R GS/ GSR	CAS/ AI	Atk Helo
RISTA	OPs	100 m-200 m	200 m	500 m	Sec	Sec	Sec	Stat	Stat	Stat	72 hrs	72 hrs	48 hrs
	Patrols	100 m-200 m	200 m	1 km	Sec	Sec	Sec	Stat	Stat	Stat/ Move	2 hrs	1 hr	1 hr
	ARK-1 AZK-5	100 m-200 m	200 m	1 km	Sec	Sec	Sec	Stat	Stat	Stat/ Move	12 hrs	6 hrs	6 hrs
ADA	SA-6/8/13	100 m-200 m	200 m		Sec	Sec		Stat	Stat		2 hrs	1 hr	
	S60	100 m-200 m	200 m		Sec	Sec		Stat	Stat		2 hrs	1 hr	
	ZSU-23-4, ZU-23-2	100 m-200 m	200 m		Sec	Sec		Stat	Stat		2 hrs	1 hr	
Fire Spt (Deep)	Astros, FROG	100 m-200 m	200 m	500 m	Btry	Bn	Bn	Stat	Stat	Stat	1 hr	2 hrs	2 hrs
	BM-21	100 m-200 m	200 m	1 km	Btry	Bn	Bn	Stat	Stat	Stat/ Move	1 hr	2 hrs	2 hrs
	2S5, M46	100 m-200 m	200 m	1 km	Btry	Bn	Bn	Stat	Stat	Stat/ Move	1 hr	2 hrs	2 hrs
Maneuver	T-62	100 m-200 m	500 m	1 km	Plt	Co	Bn	Stat	Stat/ Move	Stat/ Move	15 min	30 min	90 min
	BRDM BMP	100 m-200 m	500 m	1 km	Plt	Bn	Bn	Stat	Stat/ Move	Stat/ Move	15 min	30 min	90 min

TARGET REPORT

When targeting information is passed from one agency to another, all essential information must be included to allow for proper analysis and attack. The format below will give the targeting team enough information to properly formulate the best attack response.

TARGET REPORT

LINE NUMBER

1. Reporting Agency: _____
2. Type of Sensor: _____
3. Report DTG: _____
4. Acquisition DTG: _____
5. Description: _____
6. Posture[1]: _____
7. Activity[2]: _____
8. Size[3]: _____
9. Location[4]: _____
10. Location error[5]: _____

NOTES:

[1]Is the target dug-in, in the open, in built-up areas, and so forth?

[2]Is the target moving (include direction) or stationary?

[3]What size is the unit (company, platoon), and what size area is occupied (for example, diameter in meters).

[4]What are the grid coordinates of the target?

[5]What is the error stated as a plus or minus in meters?

AIR TASKING ORDERS

The ATO is a means of implementing combat air support. It tasks assigned and attached units to accomplish specific missions and provides enough detail to let aircrews execute the missions. The ATO must be published soon enough to let the Air Force plan their aircraft, aircrew, support, and mission requirements. The effective period of the ATO is normally 24 hours. Planning for the ATO is a continuous cycle. Below are a key and an abbreviated example of what an ATO looks like. Complete instructions on how to construct and read an ATO are found in Air Force Pamphlet (AFP) 102-2 Vol 1, Joint Users Handbook. The ATO is in USMTF message format.

KEY

SYSTEM: DTG
EXER/AIR-GROUND OPERATIONS SCHOOL EXERCISE - ATO H (FIGHTER)//
MSGID/ATOCONF/602TACC//
NARR//
THE FOLLOWING WILL SERVE AS A TEMPORARY KEY TO ALL SETS CONTAINED
WITHIN THE AIR TASKING ORDER. ANY FIELDS THAT DO NOT CONTAIN
DATA WILL BE REPLACED WITH A HYPHEN.

MSNDAT/MSNNO/PKG/CALLSIGN/#ACFT/MSN/ALRT/SCL1/SCL2/SIF1/SIF2
MSNLOC/TOT/TFT/MSNLOC/ALT/REQNO/AREA COORD (S)
TGTLOC/TOT/TFT/TGTID/TGT TYPE/DMPI/REQNO/COMMENTS
RECDATA/REQNO/PRIORITY/TOT/LTIOV/MSN TYPE/TYPE RECON/IMAG TYPE
/IMAG QUAL/COVRG EXT/TGT CODE/SCALE/DELIV TO
TRCPLOT/TGT-ID/RADIUS OR WIDTH OR ELLIPTICAL/CORRIDOR (S)
REFUEL/TNK CALLSIGN/TNK MSNNO/TRACK/ALT/ACRT/OFFLOAD/PRI FREQ /SEC FREQ

ALL FIELDS ARE ACCOUNTED FOR UNTIL THE LAST MANDATORY FIELD.
ALL TRAILING OPTIONAL FIELDS WITHOUT DATA ARE DROPPED.

EXAMPLE ATO

TASKUNIT/ 157TFS//
MSNDAT/2040/D/ODERON 05/4F16/BAI/-/G5/G10/02105/22205//
TGTLOC/070800Z/070805Z/QU7606-2951NO4751E/-/12V481//
AMPN/ REMARK IDENTIFIER (S): B
COMMENTS: MSN CDR//

SYSTEM: 19/1145Z JUL 94
MSNDAT/2042/B/OBERON 13/4F16/BAI/-/G5/G10/32113/22213//
TGTLOC/080800Z/070805Z/QU7606/-/12V481//
AMPN/ REMARK IDENTIFIER(S): B
COMMENTS: 2951NO4751E//

MSNDAT/2059/D/OBERON 41/4F16/BAI/-/G2/G1/32141/22241//
TGTLOC/071000Z/071007Z/QU5609/-/12W281//
AMPN/ REMARK IDENTIFIER(S): B
COMMENTS:2954NO4739E//

MSNDAT/1091/-/OBERON 51/2F16/GCAS/-/G1/G2/81051/22251//
MSNLOC/071500Z/071900Z/AS DIRECTED//
AMPN/ REMARK IDENTIFIER(S): A C D
COMMENTS: OPCN 682ASOC//

MSNDAT/1092/-/OBERON 53/2F16/GCAS/-/G5/G10/31053/22253//
MSNLOC/071500Z/071900Z/AS DIRECTED//
SYSTEM: 19/1145Z JUL 94
AMPN/ REMARK IDENTIFIER(S): A C D
COMMENTS: OPCN 682ASOC//
NARR/ REMARKS: 157TFS
UNIT REMARKS A
SEE GENERAL REMARKS FOR ATO H (PARA C) FOR CP LOCATION.
UNIT REMARKS B
SEE GENERAL REMARKS FOR ATO H (PARA E) FOR PACKAGING DATA AND MSN CDR

UNIT REMARKS C
21ST CORPS SUPPORT. SPECIFIC REQUEST NUMBERS WILL BE ASSIGNED
BASED ON 21ST CORPS APPROVED IMMEDIATE REQUEST ON 25 JUL.
UNIT REMARKS D
AIRCRAFT TURNED BEFORE THE END OF AN ALERT BLOCK- ASSUME STATUS DIRECTED BY 682 ASOC.

APPENDIX D
TARGETING CHECKLIST

DECIDE

____Do the commander's planning guidance and intent contain enough detail to enable the targeting team to determine--

- HVTs to nominate as HPTs?
- Desired effects on each HPT?
- When to attack each HPT?
- How to attack each HPT?
- Any restrictions or constraints?
- Which HPTs require BDA?

____What targeting assets (organic, attached, and supporting) are available to detect and attack HPTs?

____What detect, deliver, and assess support is needed from higher headquarters?

____When must requests to higher headquarters be submitted to obtain the support when required?

____Have target tracking responsibilities been established?

____Are systems in place to hand-off the detected targets to assets that are capable of tracking them?

____What detect, deliver, and assess support is required from subordinate units, and when is it required?

____What detect, deliver, and assess support requests have been received from subordinate units, and what has been done with them?

____Has the AGM been synchronized with the DST and the maneuver and fire support plans?

____Are all commands using a common datum for locations? If not, are procedures in place to correct differences in datums?

DETECT

____Does the collection plan focus on PIR HPTs? (Which includes HPTs designated as PIRs.)

____What accuracy, timeliness, and validity standards (TSS) are in effect for detection and delivery systems?

____Are all target acquisition assets fully employed?

____Have backup target acquisition systems been identified for HPTs?

____Have responsibilities been assigned to the appropriate unit and/or agency for detection of each HPT?

____Are HPTs being tracked?

____Have verification procedures using backup systems been established where necessary?

____Are TA and BDA requirements distributed properly among systems that can accomplish both?

DELIVER

____Have communications links been established between detection systems, the decision maker, and delivery systems?

____Have responsibilities been assigned to the appropriate unit ardor agency for attack of each HPT?

____Has a backup attack system been identified for each critical HPT? (The primary system may not be available at the time the HPT is verified.)

____Have FSCMs and/or AGMs and clearance procedures been established to facilitate target engagement?

____Have on-order FSCMs and/or AGMs been established to facilitate future and transition operations?

____Have potential fratricide situations been identified, and have procedures been established to positively control each situation?

____Have responsibilities been assigned to the appropriate unit and/or agency for tracking specified HPTs and providing BDA on specified HPTs?

____What are the procedures to update the HPTL and synchronize the AGM and DST if it becomes necessary to change the scheme of maneuver and fire support as the situation changes?

ASSESS

____Are the collection assets, linked to specific HPTs, still available?

____Have the collection asset management been notified of the attack of a target requiring assesment?

____Have the assessment asset managers been updated as to the actual target location?

____Has all the coordination for the assessment mission, particularly airborne assets, been accomplished?

____What is the status of BDA collection?

____Has the information from the mission been delivered to the appropriate agency for evaluation?

____Has the targeting team reviewed the results of the attack to determine restrike requirements?

____Has the target indigence gathered from the assessment been incorporated into the overall enemy situational development?

APPENDIX E
AIR FORCE TARGETING CONSIDERATIONS

Air Force targeting is a continuous cyclical six-step process that is similar to the decide, detect, deliver, and assess methodology used by the Army. Air Force targeting uses an analytical, systematic approach that focuses targeting effort on supporting operational planning and facilitates force employment.

THE SIX STEPS OF AIR FORCE TARGETING

The following six steps form the framework of Air Force targeting. They are discussed in greater detail in AFPs 200-17 and 200-18.

Objectives and Guidance

The guidance received and objectives stated by the commander will provide the basis for the targeting process. This is the first step in the targeting process and leads targeting personnel in selecting targets for attack.

Target Development

Target development is the systematic evaluation of potential target systems and their components. It is used to determine which elements of military action should, or could, be used against the targets to achieve the stated objectives.

Weaponeering Planning

Weaponeering planing is the process of determining how much of a specific weapon is required to achieve a specified level of damage to a target. Both lethal and nonlethal weapons are considered.

Force Application Planning

Force application planning is planning the optimum attack, with regard to existing resources, or specific targets. It takes into account all of the following:

- Target.
- Weapon system.
- Munitions.
- Nonlethal force options.

The result of the force application planning produces input to the ATO or strike packages.

Execution Planning

During the execution planning step, all planning necessary for the implementation of force application recommendations is made. This includes the preparation of inputs for the following:

- ATO.
- OPORDs.
- OPLANs.
- Immediate target taskings.

Combat Assessment

Combat assessment is assessing mission effectiveness and determining the need for any restrikes.

AIR OPERATIONS CENTER

The AOC is the senior agency of the Air Force TACS. It is task-organized to do the following:

- Provide centralized planning and control.
- Facilitate decentralized execution of air and air defense operations in theater.

When the AFFOR is designated as the JFACC, his AOC hosts the JAOC. The JAOC develops and executes the joint air tasking order (joint ATO). If the JFACC is also designated the ACA, his JAOC develops the ACO. Generally, the JAOC works on three separate joint ATOs at any one time:

- Executing the current day's plan.
- Coordinating and publishing the plan for operations the following day.
- Planning and conducting initial coordination for the following day.

The AOC (or JAOC) is the agency used by the commander air forces (COMAFFOR) (or JFACC) to centralize the functions of planning, direction, and control over committed air resources. The AOC functions at the component or force level. The AOC provides the COMAFFOR (JFACC) with the capability to--

- Supervise the activities of assigned or attached forces.
- Monitor the actions of both enemy and friendly forces.

The AOC has the capability to control joint and combined force air assets.

A deployed AOC integrates equipment and cadre personnel from the staff and component organizations of a general-purpose numbered air force (NAF). AOC manning is based on a cadre concept. Personnel are selected for the battle management expertise and knowledge of C^2 concepts and procedures. The cadre personnel are augmented by specialists with in-depth knowledge applicable to the current operation. Specialists will advise on the current capabilities and tactics of each of the aircraft, intelligence, or weapon systems being employed. In this way, the AOC is tailored to respond to the real world demands of the current operation.

As the senior agency of the Air Force TACS, the AOC (or JAOC) in executing the air attack portion ground operations performs the following tasks:

- Planning.
- Coordinating.
- Monitoring.
- Surveillance.
- Control reporting.

The AOC and the ASOC are the elements of the TACS most directly involved in the Air Force component and joint targeting process. The AOC must have survivable, secure communications links with operations, logistics, and intelligence centers. The AOC must also have the same dependable communications with appropriate elements of higher and lateral headquarters, subordinate units, and subordinate TACS elements.

The AOC is charged with preparing and issuing detailed orders for Air Force employment and managing mission execution.

At the same time, the AOC must maintain the flexibility to manage short notice changes dictated by changing situations. The AOC is tailored to perform a variety of missions and management functions. Each function has unique information and decision-making needs that call for many different levels of experience and personal expertise. Many contingency operations will not need equal attention to C^2. For this reason, manning, communications, and configuration will vary greatly in deployed AOCs. The AOC must perceive and understand the current situation to make timely and effective decisions for employment of air assets essential to battle management. This is the most critical activity of the AOC. It may ultimately decide the success or failure of theater air forces in achieving their planned objectives.

AIR FORCE AOC FUNCTIONS

As stated, the AOC can be tailored to perform a variety of missions and management functions. Regardless of the particular contingency, the AOC performs three basic management functions:

- Flight management.
- Battle management.
- Systems management.

Flight Management

The flight management function consists of the following two parts:

- Formalizing the mission schedule in an ATO.
- Monitoring and tracking the progress of each tasked mission to include relaying any changes to affected control agencies or flying units.

Battle Management

The battle management function of the AOC is defined as decisions and actions taken in direct response to the presence or activities of enemy forces. The battle management function is the most critical activity in the AOC. It may ultimately decide the successor failure of forces in the theater to achieve assigned objectives.

Systems Management

In the AOC, emphasis is placed on the smooth operation and interface between all elements of the TACS. Airspace management and communications management are normally subsets of this function. Some of the major concerns of the AOC in this functional area are the timely exchange of C^2 information such as--

- ATOs.
- Order of battle information.
- Scrambles.
- Threat alerts.
- Air logistical status.

AIR FORCE AOC ORGANIZATION

The AOC is composed of functional elements responsible for the following areas:

- Operations.
- Intelligence.
- Logistics.
- Communications-electronics.
- CSS.

AOC organization may vary somewhat between unified commands; however, all AOCs perform these five basic functions. The size of the C^2 organization needed in a joint operation depends largely on the size of the forces (land, sea, and air) involved. Initially, the AOC may simply guide the arrival and positioning of air resources and conduct the supporting plans and agreements necessary for their continued support and operations. During a contingency operation, the Air Force component could range in size from a single squadron to numerous wings. The size of the resulting AOC might vary. It could be maintained as a limited capability referred to as the quick response package (QRP). The manning might need to be expanded to a level called the limited response package (LRP). Also, the AOC may be staffed and equipped at the fully operational level required by operations such as Operation Desert Storm. Organizations of this size are called theater response packages (TRPs). Whatever the size of the force involved, the senior Air Force commander must have one central system to exercise control over his forces.

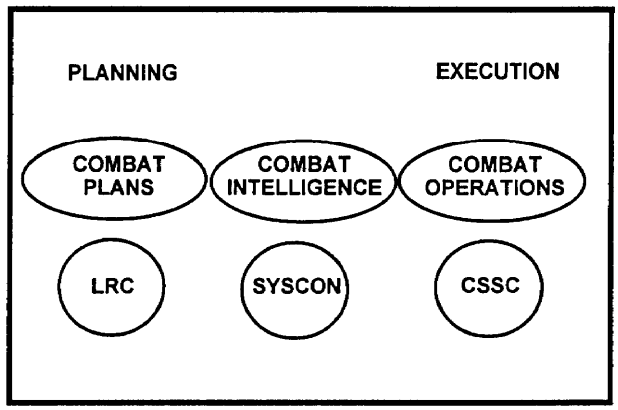
When constituted, a typical AOC consists of an AOC director and six functional elements:

- Combat plans division (CPD).
- Combat operations division (COD).
- Combat intelligence division (CID).
- Systems control center (SYSCON).
- Logistics readiness center (LRC).
- Combat service support center (CSSC).

In addition, a director of mobility forces (DIRMOBFOR) maybe assigned to the JFACC staff as a liaison from the AMC. Even though external to the AOC, the DIRMOBFOR may be authorized to coordinate directly with the ALCC in the AOC for airlift matters.

The illustration below shows the elements and their relationships to one another in the AOC.

AIR FORCE AOC



DUTIES AND RESPONSIBILITIES IN THE AOC

Each element in the AOC has duties or responsibilities to perform as the AOC provides the supporting air effort to the theater. The following paragraphs discuss the duties and responsibilities of the elements in the AOC.

AOC Director

The AOC director is typically the director of operations for the Air Force component. He is responsible for the centralized planning, directing, controlling, and coordination of air assets. He also has the same responsibility, theaterwide, with regard to surface-to-air missiles (SAMs) assigned, attached, or made available to the JFACC. The director is responsible to the COMAFFOR, who maybe the JFACC, for the tasking of all assigned air operations.

Combat Plans Division

The CPD is responsible for the air campaign planning function of the AOC. The CPD is typically divided into the following branches:

- Air campaign branch (ACB).
- Joint guidance, apportionment and targeting cell.
- ATO branch (ATOB).
- Airspace control branch.
- Plans intelligence branch.

The CPD develops the following:

- Air campaign strategy.
- Apportionment and allocation recommendations.
- ATO and related documents. For example CPD produces ACOs, target nomination list (TNL), tactical operations data (TACOPDAT), and operational tasking data link (OPTASKLINK) messages.

Combat Operations Division

The COD is responsible for execution of the current ATO. The COD is typically divided into the following elements:

- Offensive operations branch (OOB).
- Defensive operations branch (DOB).
- Airspace control branch.
- Weather support branch (WSB).
- Operations intelligence.

The COD may also include a rescue coordination center (RCC) which supports or may be designated as the joint search and rescue center (JSRC).

Combat Intelligence Division

CID directs the activities of plans intelligence, operations intelligence, and intelligence support. Plans intelligence is physically and fictionally integrated with the CPD. The same relationship exists in regard to operations intelligence and the COD. CID coordinates tasking of the following organizations to support the intelligence requirements of the AOC:

- Air intelligence agency.
- Air Force information warfare center (AFIWC).
- Air combat command (ACC).
- Combatant (unified) command intelligence assets.

Systems Control (SYSCON) Center

The SYSCON directs the employment and linkage of Air Force communications-computer systems (C-CS) elements in the theater of operations. It may also be assigned SYSCON responsibilities for a theater joint network. The SYSCON consists of the following elements:

- Site management branch.
- Operations control branch.
- System administration branch (SYSAD).
- Deployed systems support branch
- Total risk assessment cost estimate (TRACE) team/engineering branch.

Logistics Readiness Center

The LRC is the single focal point for all air-dated logistics issues within a theater of operations. It is responsible for centralized direction and control of deployment, reception, and deployment of logistical assets, and execution of logistics functions. The LRC also supervises logistics actions relating to the following:

- Mobility.
- Operations.
- Aircraft serviceability.
- Munitions.
- Aerospace ground equipment.
- Readiness spares packages.
- POL.

The LRC consists of the following branches:

- Logistics plans branch.
- Aircraft maintenance branch.
- Supply/fuels branch.
- Transportation branch.
- Contracting branch.

Combat Service Support Center

The CSSC is responsible for theater *beddown* support functions. The CSSC consists of the following branches:

- Engineering branch.
- Personnel branch.
- Services branch.
- Security police branch.
- Medical branch.
- Information management branch.

Note. For a more detailed discussion of the AOC, see Air Combat Command Instruction 13 (ACCI 13).

APPENDIX F
NAVY TARGETING CONSIDERATIONS

The basic roles of the naval forces are to promote and defend our national interests by all of the following:

- *Maintaining maritime superiority.*
- *Contributing to regional stability.*
- *Conducting operations on and from the sea.*
- *Seizing or defending advanced naval bases.*
- *Conducting such land operations as may be essential to the prosecution of naval operations.*

Naval forces accomplish these roles through deterrence operations and specific peacetime operations. At the same time, naval forces must maintain warfighting readiness through a forward deployed presence and a robust sea lift capability. In addition, naval forces maintain their interoperability with all other services.

Defending the United States and controlling its seaward approaches are the first priorities of naval forces. Gaining and maintaining control of the sea and establishing our forward sea lines of communication are the next priorities. Operating in the littoral areas of the world on a continuing basis, naval forces provide military power for projection against tactical, operational, and strategic targets.

EMPLOYMENT OF NAVAL EXPEDITIONARY FORCES

Naval expeditionary forces are task-organized, forward-deployed teams prepared to execute a broad range of options initiated from the sea. In most contingencies, naval forces complement the capabilities and resources of the Army, Air Force, and, possibly, forces of other nations. The critical operational capabilities naval expeditionary forces can provide include:

- Command, control, and surveillance.
- Battlespace dominance.
- Power projection.
- Force sustainment.

Command, Control, and Surveillance

This capability encompasses the gathering, processing, and distribution of information vital to the conduct of military planning and operations. Intelligence is central to the decision-making process. Intelligence identifies key enemy information vulnerabilities and can allow the commander to focus his resources against the enemy center of gravity.

Battlespace Dominance

Modern battlespace is multidimensional. Navy and Marine Corps operations encompass air, surface, subsurface, land, space, and time. Dominance of these dimensions is an important factor in protecting the force and enabling it to effectively project power. Multiple zones of superiority are established to protect the force and enable it to fully exploit its combat effectiveness. The zones are areas in which superiority over anything hostile that enters or passes through them is maintained for the entire operation. Superiority is achieved by using all of the following:

- Detecting.
- Identifying.
- Targeting.
- Neutralizing.

Naval commanders extend the zones of superiority ashore to protect friendly forces. By doing so, they provide an environment for the forces to accomplish their missions and establish their own defensive zones.

Power Projection

The ability to project overwhelming power from the sea is the hallmark of the naval expeditionary force. It gives the force the ability to--

- Influence events.
- Deter potential aggressors.
- Promote regional stability.
- Provide a means of collective security.

The naval expeditionary force has the capacity to rapidly develop sustained and lethal power at the time and location of our choosing. They provide the operational depth of naval power projection independently or as part of a joint or multinational operation by using the following:

- Carrier-based strike aircraft.
- MAGTFs.
- Long-range, sea-launched cruise missiles.
- Special warfare forces.
- Naval surface fire support.
- C^2W.
- Maritime pre-positioning.

Force Sustainment

Sustained naval and joint operations are made possible by a logistic support system composed of--

- Fleet-based sustainment assets.
- Strategic sustainment assets.

AMPHIBIOUS TARGETING

The following is a brief description of the amphibious targeting process reprinted from FMFM l-7/NWP 22-2 (Rev. C).

Targeting

Targeting is defined as the process of selecting targets and matching the appropriate response to them, taking into account operational requirement and capabilities. The purpose of the targeting process is to indentify potential targets, determine their potential significance and the level of damage necessary to achieve desired effects on the target, and to assign the target to the appropriate supporting arms agency. The targeting process can be broken down into a targeting sequence as follows:

- *1. Decide*
- *2. Detect*
- *3. Deliver*
- *4. Assess*

Detailed explanations of each element of the targeting sequence are available in Chapter 4 of FMFM 6-18, Techniques and Procedures for Fire Support Coordination. The targeting sequence is divided between the target intelligence officers (amphibious task force (ATF), landing force (LF), and air), the landing force target information officer, and the supporting arms coordinator (SAC), who makes the decision to attack.

The Target List

The target list is a listing of targets which is initially maintained and promulgated by the senior echelon of command. It contains those targets which are to be engaged by supporting arms and those targets on which firing restrictions have been placed. It is not a list of targets which may be maintained by any echelon as confirmed suspect, or possible targets of informational and planning purposes; nor is it a vehicle for dissemination of intelligence in general. Commander amphibious task force (CATF) and commander landing force (CLF) will establish procedures for passing control of the ATF target list from CATF to CLF as the LF phases ashore and CLF assumes control of the supporting arms. Except for those cases in which the amphibious objective area (AOA) is to be disestablished, CATF retains overall responsibility for the target list and supporting arms but relies on CLF to discharge those responsibilities.

Selection of Targets

Prior to arrival in the objective area, the acquisition of targets and the collection of target information will be largely dependent on the intelligence collection activities of higher headquarters, as driven by ATFrequests for information. The arrival of operating forces in the objective area may induce activity by previously unidentified targets. These targets should be classified and prioritized and assigned a target list part number. Information concerning new targets requires rapid dissemination through target bulletins (TARBULS). In selecting targets to be included on the target list, several factors must be considered.

Permanence

Since the list will usually prepared several weeks in advance, there must be reasonable assurance that the targets listed are not of a transitory type. This does not restrict the advance force from engaging valuable targets of such nature.

Nature of the Target

The nature of the target has an important influence on the decision as to whether or not it is included on the target list. Some types of targets, such as obstacles and minefields, require exorbitant expenditure of ammunition with generally inconclusive results. In addition, neutralization missions by the advance force should be limited to areas of known and important enemy activity which have a direct effect on their operations. Neutralization of suspected activity of small troop concentrations is unprofitable and will usually have to be repeated during the assault when troops can exploit the effect of neutralization fire.

Location of Targets

Only accuratley located targets should be selected for inclusion on the target list. If the location of a potential target is not precise, target acquisition efforts should be directed on a target unless its posture is such that it poses no threat to the LF and thus needs not be included on the target list.

Requests of Subordinate Elements

The requests of subordinate elements of the ATF must be considered. The time or means available may be insufficient to attack all targets requested and may result in the omission of low priority targets.

Responsibilities

The CATF is responsible for the preparation and promulgation of the target list. The Joint Intelligence Center (JIC) is responsible for collecting all available target data (target information and intelligence). The JIC provides target data to the SAC, who is responsible for preparing the target list. The CLF and the tactical air officer (TAO) assist the SAC in preparation of the target list by providing lists of targets desired to be destroyed or neutralized. The SAC assigns classification and priorities. The target list is approved by the CATF and is disseminated in the Operations Annex to the Amphibious Task Force OPORD. The target list is to be published prior to the OPORD, it may be published as Appendix 4 to Annex B (Intelligence) of the ATF OPORD, or it may be published in the JINTACCS/JRS TARBUL message format in accordance with NWP 10-1-13 (Supp. 2). If published in the TARBUL format, it will be specifically identified as "ATF Target List" or "Notional ATF Target List" in free text or amplification sets at the beginning of the message.

As additional target data becomes available, it is passed to the LF elements by the target information officer (TIO). If the senior echelon of command desires a newly discovered potential target attacked, such may be ordered by including the target in the next TARBUL (for fixed or semifixed targets) or by issuing an order to attack the target as soon as possible (for a mobile target). All echelons of command within ATF are responsible for ensuring that all pertinent target information which is received by them but is not included in the original target list or incorporated in TARBULS is promptly forwarded to the commander responsible for the target list utilizing the JINTACCS/JRS TGTINFOREP format. Where use of this format would result in excessive delays, or where the new information represents a significant threat to ATF or LF elements, the information will be passed via the most expedition means with appropriately formatted reports submitted at the earliest opportunity.

If subordinate commanders prepare a listing of targets of particular concern to their operations, care must be exercised to distinguish this listing of targets from the target list prepared by the CATF.

Format

The target list is subdivided into parts. This subdivision permits the grouping of targets according to the general time of attack and the desired effect.

Parts of the Target List

Each part lists targets for attack during the operational phase designated:

Part I-- Targets designated for destruction during supporting or pre-assault operations.

Part II-- Targets designated for neutralization during supporting or pre-assault operations.

Part III-- Targets designated for harassment or interdiction during supporting or pre-assault operation.

Part IV-- Targets designated for destruction by the ATF.

Part V-- Targets designated for neutralization by the ATF.

Part VI -- Targets designated for harassment or interdiction by the ATF.

Part VII-- Restricted targets to be attacked only on order of the CATF or CLF, as appropriate.

After D-Day the use of target list parts is discontinued. Targets added to the target list on D-Day and thereafter, and targets remaining on the list (those which have not been destroyed, overrun, or deleted for other reasons) can be consolidated without regard to parts. Some other system could be substituted if desired.

DETAILED DATA AND ENTRIES

The specific information included in the target list will be as required for the JINTACC/JRS TARBUL format as described in NWP 10-1-13 (Supp. 3), with the additional element of target elevation.

Target Numbers

Target numbers are assigned by the headquarters which first identifies the potential target. If a potential target is designated for attack by the headquarters controlling the target list, it will retain the target number assigned by the headquarters which first identified the potential target.

Each target, whether area or point, is assigned a target number. Each target number may be assigned to one target only. Any other target, even though it is in the same approximate location, must be given another number.

Grid Coordinates

The military grid reference system is used in giving the coordinates of a target. Locations are shown on maps and charts printed with either the universal transverse Mercator or universal polar stereographic grid system. These maps and charts are used for joint planning and operations. For operations within very large amphibious objective areas, targets located beyond the range of naval gunfire and artillery fire will be shown on aeronautical charts of 1:1,000,000 and larger scale locations will be given in geographic coordinates.

Description

The description of the target will be brief. Dimension of installations and calibers of guns, when known, must be included.

Altitude

The altitude of the target is given in the same units of measure and the contour interval specified on the map from which the target location was determined.

Target Classification

Targets are classification according to the effect they can impose during phases of the operation of the or to the degree of restriction imposed upon attack. Target classification when employed with target priority serves to determine the sequence of attack and the effect allocated to the attack.

Class A

Installations that threaten ships, aircraft, minesweeping, and SEAL operations.

Class B

Installations that threaten assault forces in the ship-to-shore movement and assault of the beach.

Class C

Installations that threaten or oppose LF operations after landing or affect the ability of the enemy to continue resistance.

Class D

Installations that will not be fired on prior to D-Day.

Class E

Installations that must not be destroyed (unless specific orders for such destruction are issued by the CATF) either because of probable future use by own forces of for humanitarian reasons. These installations may be neutralized harassed, or interdicted if they do not appear on Part VII of the target list. They may not be included on Parts I and IV of the target list.

Target Priority

Priority is assigned each target after analysis. It should be noted that within a single classification, priorities will differ. For example, although both a search radar and a gun emplacement may fall in Class A, it is highly probable that the search radar would be the greater initial threat and would therefore carry a higher priority.

The general policy regarding the priority of targets to be attacked by the NGF and by air is announced by CATF. CLF establishes priorities among those targets of concern to the LF.

Priority I

Targets capable of preventing the execution of the plan of action of the ATF or its elements.

Priority II

Targets capable of immediate serious interference with the plan of action of the ATF or its elements.

Priority III

Targets capable of ultimate serious interference with the plan of action of the ATF or its elements.

Priority IV

Targets capable of limited interference with the plan of action of the ATF or its elements.

Priorities, when considered with classification, indicate a general sequence of attack and amount of effort to be allocated to the attack of a particular target.

Elements of the ATF will recommend both a target classification and a target priority when nominating targets to be included on the target list. Obviously, a target which is a Priority I target to an element of the ATF may be Priority II, III, or IV target to the ATF as a whole. General priorities for the attack of targets of opportunity, when a choice is presented should be announced for naval gunfire and air.

Target List Maintenance

The target list may be compiled from target card files or automated data processing systems and will be transferred, physically or electronically, to the responsible commander each time responsibility is transferred.

Target Information Included

The target file is maintained to keep target intelligence and/or information in an orderly manner and to facilitate preparation of the target list and target bulletins.

The target files may contain many targets which, because they are not susceptible to artillery, air attack, and naval gunfire (NGF), or because attack on them would not be profitable, are not published on the target list. Many targets may be based on information only - not on target intelligence - and subsequently, placed in the inactive file. Other targets listed in the files are those from the enemy situation overlay, which is maintained in the SACC. The overlay may show many targets that will not appear on the target list, but any target on the overlay must be covered by information in the target files.

Target Bulletins

The commander responsible for maintaining the target list keeps other interested commanders informed of all changes to the list by means of information messages designated as target bulletins.

Further information can be found in NWP 22-2/FMFM 1-7.

COMMAND AND CONTROL

The NAVFOR commander exercises operational authority through the commanders of the numbered fleets and/or naval expeditionary task forces directly subordinate to the NAVFOR of the JFC. The officer in command is designated as the OTC. He may also be the naval expedition task force commander. He has primary responsibility for execution of the mission of the force. The Navy employs the composite warfare commander (CWC) concept as the doctrinal keystone for operational and tactical C^2 systems.

The CWC concept enables the OTC of a naval force to lead his forces in defensive combat operations against air, surface, and subsurface threats. At the same time, the concept allows the force to concentrate on the primary mission of offense. Subordinate warfare commanders are responsible to the CWC for the conduct of the tactical battle. The subordinate warfare commanders normally include the following:

- AAWC.
- ASUWC.
- ASWC.
- Strike warfare commander (SWC).
- C^2WC.

All warfare commanders are responsible for collecting, evaluating and disseminating tactical information. They conduct planning and coordination with other warfare commanders. When authorized by the CWC, they control assigned resources and autonomously initiate action. Key personnel with regards to targeting are the SWC and the air resources element coordinator.

Responsibilities of the Strike Warfare Commander

The SWC coordinates the strike capabilities of the force with respect to air and naval cruise missile assets.

Normally the commander of the carrier air wing is appointed the SWC. The commanding officer of the carrier is usually the AREC. In multicarrier battle groups, one of the battle group commanders will be the SWC. Close coordination is required between the SWC and the AREC to ensure efficient use of available assets.

The SWC appoints a strike planning team, headed by the mission commander, for each mission assigned to the carrier air wing. The strike planning cell will do the detailed mission planning needed to accomplish the strike. The strike planning cell will do all coordination needed in the carrier air wing.

Coordination outside of the wing is done by the strike operations section of the AREC's (carrier commander's) staff.

The SWC also coordinates with the following individuals and agencies:

- ASUWC.
- Submarine operations coordinating agency (SOCA).
- Force-over-the-horizon coordinator (FOTC).

The FOTC maintains the locations of enemy naval forces, for long-range war-at-sea strikes against them. The SOCA will also be involved in submarine-launched cruise missile strikes against land targets. Other service components tasked to participate in these operations will coordinate through the SWC. Air Force and Marine Corps aircraft wings doing detailed coordination of individual missions will do the bulk of the Coordination with the SWC.

Responsibilities of the Air Resource Element Coordinator

The AREC, normally the carrier commanding officer, is a resource manager and an air warfare planner and coordinator. He is also the air advisor to the OTC or CWC. He also aids the AAWC in the airspace control function. The AREC must be aware of the aircraft needs of the battle group or force. He must ensure that the aircraft are used effectively. He must also keep apprised of aircraft availability, maintenance readiness, configuration, and weapons load out. The AREC must ensure that the OTC or CWC, warfare commanders, and supporting coordinate are fully apprised of carrier air operations and aircraft availability and assignment. The AREC assembles all requests for air support from the other warfare commanders and, with the strike operations officer, produces the daily air plan. The plan allocates aircraft to the various warfare commanders. In a multicarrier battle force, each carrier will generate its own daily air plan. The OTC or CWC issues a coordinated air tasking message to provide overall guidance for preparing the daily air plan for each carrier.

Under certain circumstances, the AREC may exercise tactical control of particular aircraft, for example, tanker aircraft. However, his primary duties are--

- Allocating carrier aircraft assets.
- Executing the daily air plan.
- Transferring control to the warfare commander or requesting air services and informing the warfare commanders of the status of these assets.
- Reporting results achieved by the air assets and the information gained from their sensors.

The AREC is responsible to ensure that all aircrews are properly briefed and debriefed before and after all missions. The OTC or CWC gives the AREC priorities when requisitions for air assets exceed available resources. The AREC and his staff will be the primary point of contact for the JFACC and his staff on matters pertaining to air operations and planning.

AMPHIBIOUS TACTICAL AIR CONTROL SYSTEM

In an amphibious operation, a single coordinated tactical air control system is developed which is capable of controlling and coordinating all air operations in an area of responsibility. The amphibious tactical air control system (ATACS) is the organization equipped for planning, directing, and controlling tactical air operations in the area. The ATACS also coordinates air operations with other services. ATACS consists of the Navy tactical air control system (NTACS) (the afloat system), and the Marine air command and control system (MACCS) (the ashore system). The CATF is responsible for the ATACS organization and its employment. NTACS is used by the TAO to coordinate, integrate, and regulate all aircraft supporting the amphibious task force (ATF) before passing control ashore. As the amphibious operation develops, responsibility for control and coordination may be passed, in increments, to the commander, landing force (CLF). Finally, all responsibility for controlling and coordinating air operations is vested in the CLF.

NAVY TACTICAL AIR CONTROL SYSTEM

The NTACS is comprised of the TACC (afloat), the TADC, and the helicopter direction center (HDC).

Tactical Air Control Center

The Navy TACC, (afloat) is the principal air operations installation afloat. From the TACC all aircraft and air warning functions of tactical air operations are controlled. It is generally collocated with the SACC aboard the CATF flagship. The Navy TACC controls air support and antiair warfare forces in the AOA until control of the operations is passed to the CLF. If the need arises for another air control agency in the battle area, a TADC is created as a backup. It is assigned specific AORs in the battle area. The TAO is responsible for the overall operation of the Navy TACC. The Navy TACC is functionally organized into the following five sections:

- ATCS.
- ASCS.
- HCS.
- Antiair warfare section (AAWS).
- PSS.

Tactical Air Direction Center (TADC)

The TADC is an air operations installation under the overall control of the Navy TACC. The TADC directs aircraft and air warning functions of tactical air operations in an area of responsibility.

Helicopter Direction Center (HDC)

The HDC is an air operations installation from which control and direction of helicopter operations are exercised. It is under the overall control of the Navy TACC, TADC, or DASC ashore, as appropriate.

SUPPORTING ARMS COORDINATION CENTER

The SACC is located aboard an amphibious command ship equipped with centralized communications. This allows the SACC to coordinate fire support matters with artillery, air, and naval gunfire. SACC is the naval counterpart to the FFCC of the landing force. The Navy TACC and the SACC are separate organizations. However, they work closely in the planning controlling, and coordinating offensive air and assault support.

The Navy TACC supports the SACC by informing the SACC of air operations. The SACC supports the Navy TACC by exercising the responsibility for overall coordination of supporting fires. The interface between the Navy TACC and the SACC is provided by the air support controller. The SACC operates under the supervision of the SAC. The SAC may form the ATF staff or may be the LF force fires coordinator. The SACC includes the following:

- Naval gunfire section.
- Air support section.
- Target information center (TIC).

The naval gunfire section is manned by members of the ATF staff. It controls positioning and assignment of naval fire surface support ships on behalf of the CATF.

The air support section is manned by members of the Navy TACC. It controls supporting aircraft or transfers control to terminal air controlled ashore.

The TIC is responsible for managing target information and coordinates target intelligence with the JIC.

Members of the landing force FFCC represent the CLF in the SACC performing advisory and liaison duties. The LF force fires coordinator may also serve as the SAC. Control of air and naval gunfire is initially with the CATF. The CLF controls artillery through the GCE commander. As an amphibious operation progresses, landing force coordination agencies are established and become operational ashore. Responsibility for control and coordination of supporting arms is passed ashore incrementally. Air control is normally phased ashore as MACCS facilities become functional. After responsibility for coordination of supporting arms is passed ashore, the SACC acts as a backup. The personnel in the SACC continue to monitor radio nets and maintain status boards in the event the SACC must reassume control.

APPENDIX G

MARINE CORPS TARGETING CONSIDERATIONS

Marine Corps operating forces are organized, equipped, and trained to conduct operational maneuver from the sea as *a primary means of projecting maritime power ashore. Marine forces contribute to this maritime power projection by providing an amphibious forcible entry capability. Marine forces can also conduct sustained operations ashore and other expeditionary operations, such as--*

- *Forward presence.*
- *Crisis response.*
- *Humanitarian assistance.*
- *Peacekeeping.*

To perform these expeditionary operations, Marine forces are organized into MAGTFs.

MAGTFs are self-contained, combined arms warfighting organizations formed under a *single commander. They are composed of Marine forces drawn from a division, an aircraft wing, a force service support group, and the surveillance, reconnaissance, and intelligence group (SRIG). The MAGTF is task-organized to exploit the combat power inherent in a carefully integrated combined arms team. MAGTFs are task-organized expeditionary forces. They are trained and equipped, to include organic self-sustainability and sophisticated command and control capability, to operate forward in the littoral areas of the world. The composition of a MAGTF may vary considerably. However, the organizational structure, by definition, will always include the following four elements:*

- *Command element (CE).*
- *GCE.*
- *ACE.*
- *CSSE.*

STANDARD MARINE AIR-GROUND TASK FORCE ORGANIZATION

Standard MAGTF task organizations include the elements discussed in the following paragraphs.

Marine Expeditionary Force

Commanded by a lieutenant general, the MEF includes about 32,000 to 45,000 Marines and sailors. It is normally composed of one or more Marine divisions, a Marine aircraft wing (about 330 to 400 fixed- and rotary-winged aircraft), and a force service support group (FSSG). The FSSG provides medical, transport, supply, maintenance, and engineering sustainability support for about 60 days. The MEF is the primary Marine Corps warfighting organization.

MEF (Forward)

During deployment or transition of an MEF into the theater or as part of maritime pre-positioning operations, an MEF (Forward) may be employed. An MEF (Forward) may constitute the assault echelon of an MEF. An MEF (Forward) includes about 13,000 to 17,000 Marines and sailors. It is normally composed of a reinforced infantry regiment and a Marine aircraft group (about 200 fixed- and rotary-winged aircraft). It is supported by a CSSE that can provide 30 days of sustainability if supported by a maritime prepositional squadron (MPS).

Marine Expeditionary Unit

Commanded by a colonel, the Marine expeditionary unit (MEU) includes 2,000 to 2,200 Marines and sailors. The MEU GCE is normally an infantry battalion landing team (BLT) reinforced with the following:

- Field artillery battery.
- Amphibious assault vehicles.
- Light armored recon vehicles.
- Combat engineers.

The MEU is normally supported by an ACE and an MEU service support group (MSSG). The ACE is a reinforced squadron including a mix of attack helicopters; light, medium, and heavy transport helicopter; and vertical takeoff and landing (VTOL) attack aircraft. The MSSG can provide 15 days of sustainability. MEUs are normally sea-based aboard an amphibious ready group (ARG). They are forward-deployed to meet the operational requirements of the CINC. Forward deployment makes the MEUs the most responsive elements of the MAGTFs. MEUs are trained, equipped, and certified as special operations capable (SOC) before deployment. Because of the size and sustainability, an MEU will generally require reinforcement for extensive and/or extended operations ashore. The MEU is capable of compositing additional forces, transitioning to a MAGTF, or serving as the enabling force to facilitate the introduction of other forces.

SPECIAL PURPOSE MARINE AIR-GROUND TASK FORCES

A special purpose Marine air-ground task force (SPMAGTF) may be used for a mission-specific or constrained-sealift situation. SPMAGTFs are smaller in size than a notional MEU and are, therefore, less capable. SPMAGTFs maybe formed for humanitarian assistance, disaster relief, or limited security operations under semipermissive conditions. The SPMAGTF is neither organized nor equipped for operations in a high- or mid-intensity nonpermissive (hostile) environment.

COMMAND AND CONTROL

When sea-based and forward-deployed, the MAGTF is under the operational command of the appropriate theater CINC. It is OPCON to the commander of a numbered fleet. Nevertheless, the MAGTF maintains a close relationship with, and may report for planning to, the amphibious group or squadron commander. When an initiating directive is issued tasking the MAGTF to conduct an amphibious operation, it will specify when the MAGTF will be OPCON to the ATF or naval expeditionary force (NEF) commander. The MAGTF commander is also designated as CLF. This command arrangement remains in effect throughout the amphibious operation until the MAGTF and ATF or NEF commander agree that the MAGTF is securely established ashore. At that point the MAGTF changes operational command to the supported area combatant commander (for example, the JTF commander). The MEF CE has the needed command and control capability to act as a JTF headquarters. The following paragraphs discuss the command and control organization and fictions in the MAGTF.

Fire Support Command and Control Organization

FSCCs are established at each battalion- and higher-level maneuver force of the GCE. An FFCC is established at the MAGTF CE. Each FFCC and FSCC is staffed with representatives of the various Marine and Navy supporting arms. A force fires coordinator (FFC) directs the operations of the FFCC; a fire support coordinator (FSC) is responsible for FSCC operations. Until established ashore, the MAGTF FFCC and the GCE FSCC provide representatives to the SACC of the ATF. Their job is to advise on MAGTF operations and to monitor fire support operations ashore. As FSCCs are established ashore, they coordinate with the FSCCs of adjacent units and of the next higher echelon if ashore. If higher echelon FSCCs are not yet operational, they coordinate directly with the SACC afloat. Once the entire network of FSCCs and the MAGTF FFCC are established ashore, the SACC supervises the coordination of supporting arms until control is passed to the FFCC ashore. The SACC acts as a backup, SACC personnel monitor operations and maintain status boards and communication circuits. If needed, the SACC is prepared to reassume control.

Marine Air Command and Control System

The MAGTF ACE provides a MACCS to control and coordinate air operations ashore. Principal MACCS agencies include the Marine TACC, DASC, TAOC, and MATCD.

The Marine TACC is the senior MACCS agency and serves as the operational command post for the ACE commander. The Marine TACC consists of two sections-future operations section (FOS) and the current operations section (COS). The FOS is responsible for planning air operations in the near future (24 to 72 hours). The FOS receives air support requests from the MAGTF, recommends apportionment of MAGTF aviation assets to support those requests to the MAGTF commander, allocates aircraft sorties to support MAGTF operations, and produces the MAGTF ATO. The FOS typically coordinates directly with other service aviation planners and the MAGTF current operations cell (COC), which includes the FFCC. The

COS, concerned with on-going operations, is responsible for managing execution of the daily ATO, coordinating on-going MAGTF air operations with other services and supervising the MACCS. The COS is divided into four sections: a command section that oversees the functioning of the COS; an air support section that supervises MAGTF offensive air support and assault support activities; an air defense section that supervises antiair warfare efforts within the MAGTF AO; and an interface coordination section that is responsible for maintaining and exercising tactical digital information links (TADILs) on which the TACC is operating. The counterparts to the Marine TACC in the other services are the Air Force AOC and the Navy TACC.

The DASC is the MACCS agency responsible for the following:

- Processing immediate air support request.
- Coordinating aircraft employment with other supporting arms.
- Managing terminal control assets.
- Supporting ground combat and combat service support forces.
- Controlling assigned aircraft or itinerant aircraft transiting through the area of responsibility of the MACCS.

The focus of the DASC is on direct air support operations for the GCE commander. The DASC collocates, either physically or electronically, with the senior FSCC of the GCE, coordinating direct air support requirements with the FSCC and the air support section of the Marine TACC COS. The DASC is typically the first MAGTF air command and control agency established ashore. Counterparts to the DASC in the other services are the Air Force ASOC and the Navy HDC and TACC air support section.

The TAOC is the principal MACCS air control agency responsible for airspace control and management. It provides red-time surveillance of assigned airspace and direction, positive control, and navigation assistance for friendly aircraft. Responsible for the detection, identification and intercept control of hostile aircraft and missiles, the TAOC serves as the principal MAGTF air defense agency. The TAOC coordinates with higher, adjacent, and subordinate air defense agencies, to include MAGTF surface-to-air weapon systems, fighter aircraft, and the air defense and interface coordination sections of the Marine TACC COS. Counterparts to the TAOC in the other services are the Air Force CRC and designated Navy sector antiair warfare platforms.

The MATCD provides 24-hour, all-weather air traffic control services to main airfields and forward operating bases. The MATCD also supplements the survallance coverage for the integrated air defense systems of the MAGTF with organic radars. The MATCD typically coordinates with both the air support and defense sections of the TACC COS.

As referenced earlier, the MACCS agencies most directly involved with the targeting process are the Marine TACC and the DASC. However, in the case of TBM attack operations, the TAOC provides the MAGTF sensors responsible for detecting and tracking TBMs and originates a circular error probability ellipse for the missile launch area. The DASC is the MACCS agency responsible for controlling direct air support aircraft (close air support and assault support). The TAOC provides that information and flight following to aircraft conducting deep air support operations within the assigned sector of the TAOC.

During the process of phasing control ashore, the DASC is typically the first MACCS agency established ashore. It normally lands in the same wave as the GCE's senior FSCC. In preparation for assuming control of direct air support operations ashore, the DASC must complete a prescribed checklist of functional capabilities, which normally coincides with a similar checklist completed by the senior FSCC. Once the checklist is complete, the CLF will request from the CATF that responsibility for control of direct air support functions be passed ashore. When the DASC assumes these functions, it is responsible to the Navy TAOC for its operations. Like the DASC, the TAOC also completes a checklist to assume responsibility for sector antiair warfare functions. The Marine TACC, initially operating as a TADC, will also complete a checklist to assume functions as the senior air command and control agency in the AOA. Once this function is passed ashore, the Navy TACC and Marine TADC swap functions, with the Navy TACC reverting to a TADC role and the Marine TADC becoming the Marine TACC. The process of phasing control ashore is normally conducted incrementally, with each agency receiving greater responsibility as the situation matures, until all functions are eventually passed ashore.

Organization for Targeting

Within the NEF, there are essentially two organizations that have a joint force targeting capability-the ATF and the MAGTF CE. The ATF relies on the JIC for all

intelligence collection, analysis, and reporting in the ATF. The MAGTF representative for targeting matters in the JIC is the LF target intelligence officer (TgtIntelO). The LF TgtIntelO handles target intelligence and passes it to the TIC in the SACC. TIC personnel maintain the status of high-priority targets and the ATF target list. During operations ashore, the MAGTF CE supports the targeting activities of the GCE and the mission planning of the ACE by responding to requests for targeting data from the GCE and ACE. The targeting focus will be on targets in the MAGTF commander's area of influence. The primary targeting capability in the GCE is at division level.

TARGETING

MAGTFs use the decide, detect, deliver, and assess targeting methodology that is essentially the same as that used by the Army. FMFM 6-18 and this manual are the references for MAGTF targeting. The purpose of targeting in the MAGTF is to select for attack enemy installations, units, or equipment that are most vulnerable and best support mission accomplishment. All echelons of the MAGTF do not have an officially designated target information section (TIS). The targeting process is done in every FFCC and FSCC. Targeting is an integral part of the planning process that begins when a mission is received and continues through all phases of the plan. It is based on the friendly scheme of maneuver and/or tactical plan. It includes an assessment of the weather, terrain, and the enemy situation. The assessment identifies enemy units, equipment facilities, and terrain which must be attacked or influenced to ensure success. Targeting includes a priority list specifying the following:

- Targets to be acquired and attacked,
- When the targets are to be acquired and attacked.
- What is needed to achieve the desired effects on the target.

Selected crucial targets are also identified for deliberate BDA and follow-up action. The targeting process supports the commander's decision and helps determine which attack option will be used. Maneuver, fires, electronic attack, or a combination of these maybe used to attack the selected targets.

KEY TARGETING PERSONNEL

There are several special staff officers who play important roles in the targeting process. The following paragraphs discuss some of the personnel and their duties in the targeting process.

Target Information Officer

A TIO may be assigned as part of the MAGTF FFCC. There is always, however, a TIO assigned to the GCE FSCC in a division-size GCE. This TIO is provided by the artillery regiment. He is a member of the G3 staff and is responsible for peforming targeting. He works closely with the TgtIntelO in the G2 section. At lower command echelons, the FSC peforms the TIO duties. Duties of the TIO include the following

- Maintaining reports on potential targets from G2 and S2 staffs, units, and other FSCCs.
- Maintaining target lists, cards, and records,
- Performing preliminary weaponeering.

Target Intelligence Officer

The division TgtIntelO is a member of the G2 section. He works closely with the TIO. Although lower Marine echelons have no TgtIntelO, S2 staff performs his targeting functions. The TgtIntelO duties include the following:

- Target information collection.
- Target analysis.
- Preparation of target intelligence products.
- Dissemination of target intelligence.

Decision-Maker

Marine Corps doctrine uses the term *decision-maker* to indicate reliance on watch officers, staff, and commanders who have authority to make target attack decisions. In the decision-making process, by Marine Corps doctrine, he considers the following three options:

- Order the GCE to attack the target if it is in the range and capability of the GCE.
- Pass the target attack requirement to the ACE for an air strike.
- Request attack by other means (for example, naval surface fires and Air Force bombers).

TARGETING DECISIONS

The MAGTF commander makes decisions on OAS priorities with recommendations from the GCE and ACE commanders. Subject to the MAGTF commander's apportionment decision, the GCE

commander establishes close air support priorities. The ACE commander provides the GCE commander with an estimate of the aviation capability that can be applied toward OAS. The MAGTF commander makes apportionment decisions with the advice and recommendations of the GCE and ACE commanders.

CAS Targets

Analysis of CAS targets is the responsibility of the GCE commander. The GCE commander identifies, plans, establishes target priorities, and coordinates air attacks in accordance with his ground concept of operations. The GCE commander distributes CAS sorties allotted to him. If additional CAS support is required, it is requested through the ATF or NEF (whichever is appropriate) or JTF.

Deep Air Support Targets

DAS is conducted in the MAGTF AO on the basis of the scheme of maneuver. The GCE and ACE commanders recommend DAS targets to the MAGTF commander for air interdiction by the MAGTF. The MAGTF commander nominates targets outside his AO to the JFC through the CATF or NEF commander as necessary. The MAGTF commander may also request more sorties from the JFC on DAS targets in the MAGTF AO if they exceed the capability of the MAGTF capability.

Air Tasking Cycle

The MAGTF air operations tasking process is based on a 24-hour cycle. The end product of that process is the Marine ATO. If the amphibious operation is being conducted under a joint force commander, the ATF and MAGTF air tasking cycle will conform to the established joint air tasking cycle procedures.

APPENDIX H

TARGETING CONSIDERATIONS FOR SPECIAL OPERATIONS

SOFs are specially trained, equipped, and organized. They conduct operations against strategic, operational, or tactical targets in pursuit of military, political, or psychological objectives. Army special operations forces (ARSOF) consist of the following:

- *SF.*
- *Ranger.*
- *Civil affairs (CA) teams.*
- *PSYOP personnel.*
- *SOA units.*

Navy special operations forces (NAVSOF) consist of SEAL teams and SEAL delivery teams. Air Force special operations forces (AFSOF) consist of special operations wings that can provide fire support and/or delivery of SOF. SOF are an integral part of the joint targeting process.

SOF operate in areas denied to other forces due to political, tactical, environmental, or geographic reasons. Their missions include all of *the following:*

- *Foreign internal defense (FID).*
- *Unconventional warfare (UW).*
- *SR.*
- *Direct action (DA).*
- *Counterterrorism (CT).*
- *CA.*
- *PSYOP.*

They may also be tasked to perform collateral activities, such as security assistance, humanitarian assistance, antiterrorism, and other security activities. SOF may be involved in counterdrug operations, personnel recovery, and special activities. These missions are fully explained in Joint Pub 3-05 and FM 100-25. The SO missions that may require fire support are DA, SR, and to a lesser extent FID and UW.

SOF are task-organized to conduct these SO missions. For the purpose of this manual, SF, Ranger, and SEALs conduct missions requiring targeting. CA, PSYOP, ARSOF, AFSOF, and general-purpose (GP) force assets support those requirements.

SOF SUPPORT REQUIREMENTS

Special operations are often conducted before the arrival of GP forces or against targets far from established support bases. Operating in denied areas requires detailed planning and coordination. Units supporting special operations should be familiar with Joint Pub 3-05.5.

SOF support requirements include the following:

- Long-range infiltration and exfiltration support.
- EW.
- SEAD.
- Emergency fire support. (Fire support is most often NGF or CAS, but can certainly be FA frees if they are in range.)
- Sophisticated communications systems.

The discriminate and precise use of force with minimal collateral damage in these areas are important to the success of an operation.

Special operations normally require a 120-hour mission planning period. The planning time considers the increased intelligence-gathering activities and rehearsals needed when infiltrating SOF into denied areas. The planning time includes planning for support from other components. Conversely, because of the time needed, units that operate on shorter planning schedules often find it difficult to coordinate and integrate SO support.

COMMAND AND CONTROL

The joint force special operations component (JFSOC) is a functional component for SO. It normally exercises day-to-day OPCON of assigned or attached SOF through a system of internal service components. Based on guidance from the JFC, the JFSOC commander allocates forces against strategic or operational targets, for combined or coalition support operations, as well as for tasks supporting component commanders. The missions often include coordination with PSYOP, CA and SOA assets. The missions are verified during the joint targeting process.

The SOCCE is provided to a supported operational headquarters by an Army special operations task force. The mission of the SOCCE is to synchronize SOF operations with GP force operational and intelligence requirements. The synchronization is necessary to enhance the SOF and GP force missions. It also helps reduce the possibility of fratricide. Fratricide danger increases as GP forces begin operating in formerly denied areas and physical integration of forces is possible.

The SOCCE directly controls deployed special operations forces under tactical control (TACON) to the GP force commander. It is normally collocated with the supported commander's command post and provides the required communications links with deployed SOF elements. It ensures that intelligence data and FSCMs are exchanged between the GP maneuver forces and the deployed SOF elements.

TERMINAL GUIDANCE OPERATIONS

Terminal guidance operations (TGO) involve electronic, mechanical, visual, or other assistance to aircraft, missiles, ships, and artillery assets. It facilitates target acquisition throughout the operational area by ground elements. TGO may be conducted independently or in conjunction with GP forces and/or other SOF. They may be conducted during war or in support of OOTW. In a conventional environment, TGO are conducted on the threat side of the FSCL. TGO may also be conducted in denied areas or in a nonconventional environment where coordination lines have not or cannot be defined.

A terminal guidance operation is one type of SOF direct action mission. As with all SO, the interface between the ground element and the strike platform requires detailed planning and coordination. Fire support planning incorporates all available weapon systems that are in, or may be introduced into, the joint operational area. Units involved in TGO should be familiar with the following:

- FM 31-20-4, *Direct Action Tactics, Techniques, and Procedures for Special Forces.* (Soon to be published.)
- *Terminal Guidance Operations Handbook.* (Produced by the United States Army John F. Kennedy Special Warfare Center and School at Fort Bragg, NC.)

APPENDIX I
BATTLEFIELD COORDINATION ELEMENT

The Army component commander establishes a BCE to act as the coordinating agency between his headquarters and the JFACC staff. The BCE is collocated with the JFACC's senior air operations control agency, normally the AOC. The mission of the BCE is to facilitate synchronization of air operations with ground operations through coordination of air support and the exchange of operations and intelligence data. The BCE is responsible to the Army component commander and coordinates with and receives objectives, guidance, and priorities from his operations officer (G3). On the basis of this information, the BCE represents the needs of subordinate land units for air support.

BCE MISSION-ESSENTIAL TASK LIST

The following tasks make up the mission-essential task list for the BCE.

- Provide the friendly and enemy ground situation to the JFACC and AOC.
- Interpret and relay to the ASOC Army component requests for air support.
- Help the AOC develop the MAP and ATO to support the Army component scheme of maneuver and plan for FS, EW, and reconnaissance.
- Serve as the final point for intelligence exchange and coordination between the Army component and the JFACC collection and dissemination systems.
- Facilitate deconfliction of the Army component and JFACC requirements for airspace.
- Integrate and coordinate the Army component ADA activities with the JFACC's defensive air campaign.
- Coordinate airlift support for Army component operations.
- Provide feedback on the air war to the Army component.

ORGANIZATION AND FUNCTION

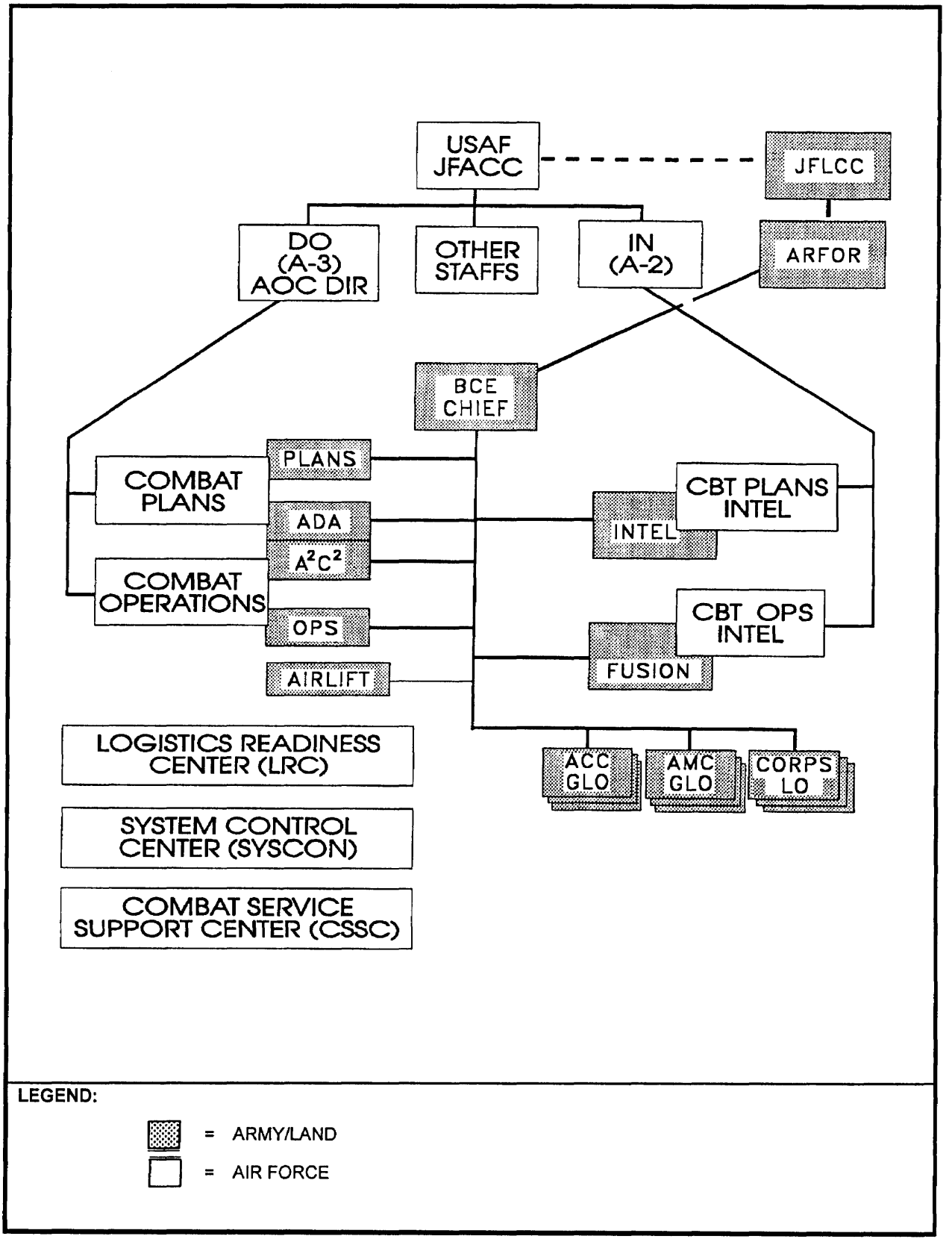
The BCE sections interface with the AOC as depicted in the figure on page I-2. BCE sections do not operate independent of one another. They all inform each other of current or future actions requiring immediate or planned coordination. They also must keep the ARFOR staff informed of the same and respond appropriately to ARFOR requests for assistance. The following paragraphs describe functions performed by individuals and sections when working with the AOC and ARFOR. The functions make the BCE critical to planning, coordinating, and executing air and ground operations.

The figure on page I-2 shows the organization of a JAOC provided by the Air Force as the JFACC. If appropriate, a MARLO, NALE, Navy surface operations liaison element, and SOLE will also join the AOC structure. The Air Force director of combat operations (DCO) reports to the AFFOR deputy of operations (DO) and is the director of the Air Force AOC. Subordinate to the DCO are the chiefs of combat plans and combat operations. The Air Force director of combat intelligence (DCI) reports to the AFFOR deputy for intelligence. Subordinate to the DCI is the chief of the CID who oversees combat plans intelligence and combat operations intelligence.

BCE Chief

The BCE chief is responsible to the ARFOR commander and coordinates with and receives guidance directly from the ARFOR G3. The ARFOR commander informs the BCE of his priorities, guidance, and intentions. The BCE relays the Army requirements for air support to the JFACC and his staff for integration into the air campaign. All preplanned fixed-wing air missions are coordinated through the BCE. Immediate missions are passed to the BCE for coordination only after the ASOC decides they cannot be supported with available ASOC resources.

BCE-AOC INTERFACE



Plans

The primary mission of the BCE plans section is the integration and synchronization of tactical air support planning with the Army forces commander's intent and scheme of maneuver. The BCE plans section is collocated with the AOC plans section and performs the following tasks:

- Relays, interprets, and coordinates Army requests for air support (for example, interdiction target nominations and preplanned CAS and JFACC requests for support by ground units).
- Provides the Army commander's intent, guidance, objectives, and priorities for air support.
- Provides the Army FSCMs, planned concept of operations, OPLANS, OPORDS, overlays, and friendly and enemy order of battle to the AOC.
- Helps plan, coordinate, and synchronize J-SEAD and EW operations.
- Serves as the BCE focal point for all ARFOR preplanned targeting operations.
- Integrates and synchronizes all ARFOR requests for preplanned air support.
- Ensures an efficient and effective deep operations targeting process
- Helps develop the ATO.

Intelligence

The BCE intelligence section coordinates with the ARFOR G2 (intelligence) sections to obtain Army intelligence reports and collection needs. It provides the JAOC combat plans intelligence section with information on enemy ground order of battle and assists in developing targets. The responsibilities include the exchange of information to answer CA and BDA questions. In addition, the section peforms the following tasks:

- Provides information on enemy ground order of battle. Helps interpret the information and target development. Validates Army component nominated targets.
- Processes, justifies, and coordinates Army requests for tactical reconnaissance and EW support.
- Obtains Army intelligence reports and facilitates the exchange of intelligence data. Coordinates intelligence data for unique targeting requirements.
- Reviews BDA of current AI targets; makes recommendations on target selection to Army or corps targeting personnel on the basis of CID and/or the intelligence section review of BDA.
- Review mission reports for Army PIRs.
- Coordinates ES measures with Army and Air Force EW and EC mission personnel to ensure frequency deconfliction before joint EW operations.
- Provides information on dislocated civilian interference on the battlefield and other such information to preclude fratricide and unnecessary collateral damage.

Operations

The BCE operations section monitors execution of the current joint ATO and coordinates changes to ARFOR targets and priorities that occur during the battle. It is collocated with the AOC combat operations division. Operations stays updated on land operations to include the following:

- Provide updated information on AI missions and targets.
- Provide updated information on the current air situation by monitoring sorties of interest to the ARFOR.
- Ensures that current ATO AI sorties are not canceled or diverted without consultation with the ARFOR.

It provides the ARFOR commander and staff with the following information:

- Concept of operations and weight of effort for CAS and AI.
- Target priorities.
- Tactical air reconnaissance.
- EW.
- Battle status.
- Nuclear weapons employment information of the AOC.

Other tasks performed by the operations section of the BCE are as follows:

- Monitors execution of the current ATO as it pertains to missions planned against Army component nominated targets.
- Coordinates all changes that affect the current ATO including diverts, reroles, and cancellations of missions.
- Coordinates all changes in the Army component current operations, objectives, priorities, nominated targets, and FSCMs.
- Coordinates surface-to-surface missile strikes as required with the AOC combat operations division.
- Coordinates with ARFOR, AFFOR, NAVFOR, and MARFOR on all restrictive and permissive FSCMs and NBC operations.
- Coordinates with GLOs and air reconnaissance liaison officers (ARLOs) to ensure they have the most current information on friendly and enemy ground order of battle.

Fusion

The BCE fusion section is colllocated with the enemy situation and correlation division (ENSCD) of the AOC combat operations intelligence section. It is responsible for maintaining and posting significant ground threat information from all available sources on the BCE situation map. The fusion section also advises and maintains coordination with the JFLCC and/or ARFOR G2 operations section. In this way, a continuous exchange of enough information and timely dissemination of intelligence data are accomplished. The fusion section also performs the following tasks:

- Ensures the JFACC understands the criticality of nominated targets for the ARFOR commander.
- Interprets intelligence from a ground battle perspective for the ENSCD and air component commander.
- Provides GLOs, ARLOs, and the BCE airlift section with periodic updates of enemy ground situation.
- Ensures timely processing of BDA to the land force headquarters and identifies new targets for attack.
- Processes kind force requests for immediate tactical air reconnaissance and EW support.
- Provides current land force intelligence picture to the AOC operations division.

Air Defense Artillery

The BCE ADA section coordinates Army air defense matters with the AOC combat plans and combat operations divisions and ARFOR ADA headquarter. The section also performs the following tasks:

- Represents the Army component in the development of the airspace control order, the air defense plan, and ROE.
- Informs and advises the land force ASM element and the AOC of the impact of any additions or conflicts on airspace activities and control measures.
- Schedules Army fixed-wing aircraft into the ATO.

BCE Airspace Management

The BCE airspace management section coordinates Army A^2C^2 retirements with the AOC combat plans and combat operations divisions. The airspace management section also performs the following tasks:

- Coordinates air defense and airspace requirements with the AOC, Army liaison at CRCs, and the land force air defense headquarters.
- Coordinates with the AOC, Army component headquarters, and Army air defense headquarters on changes in ROE, identification procedures, air defense warning, ADA employment and deployment, and reporting requirements.

Airlift

The BCE airlift section is collocated with the Air Force component AME and performs the following tasks:

- Coordinates and monitors airlift missions, with the JMCC, the theater army movements control agency (MCA), and the ARFOR G3 air and G4 transportation in support of Army component operations.
- Advises the commander of the airlift forces and his staff on all matters pertaining to kind force operations and intelligence.
- Provides the location of DZs, LZs, and pickup zones (PZs) including planned activities and control procedures used, to the AME.

- Monitors publication, distribution, and execution of the airlift ATO.
- Informs the BCE chief of airlift operations to include the following:
  - Airlift priorities.
  - Number and type of aircraft available.
  - Planned airlift operations information.
  - Number of airlift requests received (preplanned and immediate and/or emergency) and the current status.

MULTICORPS OPERATIONS

When engaged in multicorps operations, each corps Provides LO(s) to the BCE to represent the corps interests at the AOC. The LOs help rapidly expedite coordination of air-ground missions and transfer of operational and intelligence data.

GROUND LIAISON OFFICER

GLOs are Army officers who support Air Force numbered air force, fighter wing, theater air control, and airlift units. They primarily advise Air Force commanders on Army organization, operations, tactics, and equipment. They also help the Air Force commander and his staff by coordinating with Army units during joint operations.

The US Army assigns GLOs to designated numbered air force, wing, and squadron headquarters. GLOs are aligned with both ACC and AMC organizations. They are provided by US Army Forces Command (FORSCOM). They are permanently stationed with the Air Force unit and function as a special staff element in the unit headquarters. The numbered air force GLO functions as the senior Army officer in the numbered air force structure.

A memorandum of agreement exists between the Army and the Air Force which includes the GLO on mobility requirements for his host Air Force unit. The Air Force unit provides appropriate items of organizational equipment, to include individual weapons. GLOs deploy with their Air Force unit during combat contingencies and will be listed on unit time-phased force Deployment lists.

GLOs perform the following duties:

- Advise air commanders on Army organization, operations tactics, and equipment.
- Help prepare base defense plans and take an active part in defense of the installation in combat situations.
- Help the air commander in unit training on matters pertaining to support of ground forces.
- Arrange for liaison visits of Air Force personnel to Army posts and units and coordinate visits of Army personnel to Air Force bases.
- Help in planning joint training exercises and unit evaluations.
- Perform the GLO duties specified in AR 611-201, in military occupational specialty (MOS) code 54A5U, during joint exercises.
- If assigned to numbered air force headquarters, may function as a member of the land component commander's (LCC) BCE located at the JAOC.
- Continuously examine air-ground procedures of particular interest to aircrews, and recommend improvements, where appropriate, such as the following:
  - Briefings and debriefings.
  - Target designation and identification of friendly troops.
  - Employment attack and/or recon options.
- Perform duties specified in FM 100-26 as applicable.
- Coordinate requests for waivers for dangerous and hazardous aircraft cargo (AMC GLO).
- Administer the Army portion of the AMC affiliation program (AMC GLO).
- May help the Air Force unit commander by performing additional duties as a member of the operations group staff. (Assuming the tasks assigned are within the capabilities of the GLO, and their execution does not affect his primary mission.)
- Fly in and become familiar with the primary mission aircraft of the host unit, where possible.

Further information on requirements for ACC and AMC GLOs and their duties is found in the Memorandum of Agreement between the Headquarter of Air Combat Command (ACC), Air Mobility

Command (AMC), Army Forces Command (FORSCOM), and Army Training and Doctrine Command (TRADOC), for the Assignment Duties, and Support Guidance for Ground Liaison Officers, Theater Airlift Liaison Officers, Tactical Air Control Parties, and Air Support Operations Center Squadrons.

AIR DEFENSE LIAISON OFFICER

The Army provides air defense LOs to the CRC to aid rapid engagement of airborne targets, Air defense LOS may also be provided to the AWACS to aid the ground-to-air battle.

SUPPORT TO AIRBORNE WARNING AND CONTROL SYSTEM AND AIRBORNE COMMAND, CONTROL, AND COMMUNICATION

During contingency operations, passing early warning from AWACS and/or ABCCC to Army ADA units can be done by an Army representative aboard the AWACS or ABCCC. Although not a normal mission for the BCE, personnel trained in AWACS operations can deploy with the AWACS or ABCCC to the objective area. Regardless of who provides the GLO, the GLO should be qualified and empowered to make immediate decisions supporting his commander's intent and guidance. The GLO must maintain a record for follow-up actions, feedback, and reporting on target acquisition, attack, and BDA.

The BCE is not self-sufficient and has no organic transportation. The BCE depends on appropriate elements of the JFACC for all of the following:

- Quarters and rations.
- Security.
- Medical support.
- Common items of supply.
- Maintenance and logistics support.
- Internal communications support in the JAOC.
- Communications interface with the host JFACC organization.

The BCE must be capable of communicating (voice and data) with Army GLOs stationed with ACC and AMC units. It depends on the appropriate elements of the ARFOR to which it is assigned for the following:

- Religious and health service support.
- Legal, finance, and personnel administrative services.

The BCE depends on the signal command designated to support the ARFOR commander for communication support. Under a single corps scenario, the BCE is supported by the signal brigade or battalion that supports the corps. The BCE requires automation systems support which is interoperable with JFACC systems for exchange of the following:

- Information and requests.
- Intelligence reports.
- Air tasking data.
- Airspace control data.
- Airlift support information.
- Logistics data.
- Air defense data.
- Fire support information.
- Operational graphics.

BCE communications and automation systems must be capable of linking with supported ARFOR units.

The supported ARFOR headquarters must provide transportation support for BCE personnel and equipment to the JAOC location. Arrangements may be made with the host JFACC for transportation. Transportation for the BCE must be included in all deployment planning and in the time-phased force deployment data (TPFDD).

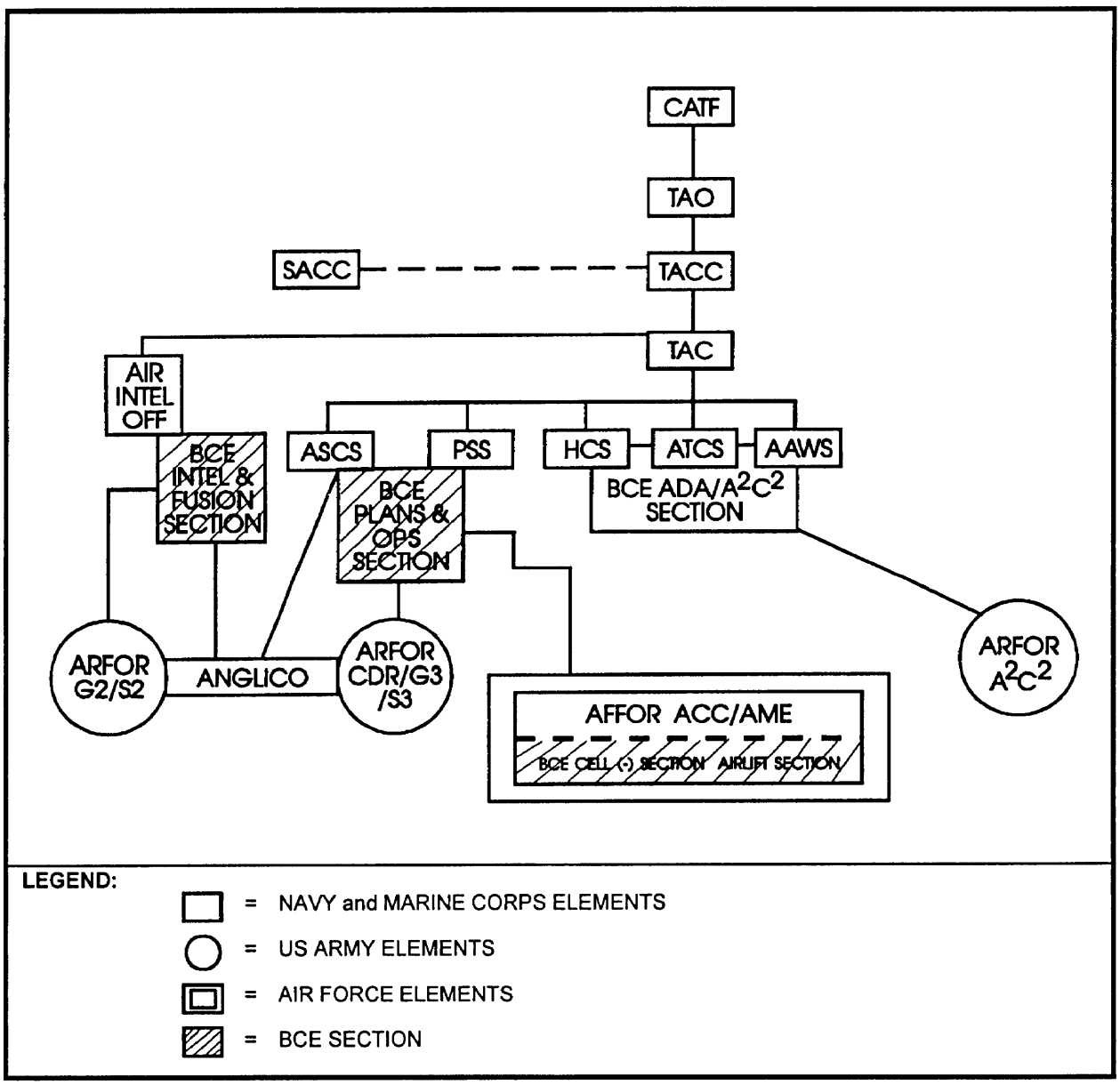
The BCE is not robust and may require additional personnel for efficient 24-hour a day operation. Depending on the mission and organization of the ARFOR, augmentation may be needed in the BCE sections whose functions represent the focal point of air-ground operations.

For more detailed information on the BCE, see FM 100-13.

NAVY AND MARINE CORPS OPERATIONS

In several scenarios, it is possible, and even probable, that the Navy and/or Marine Corps component could be assigned the JFACC role. In this role, they would be the primary provider of air support to the Army component. Integrating the BCE into the Navy TACS and/or the MACCS is done by task-organizing the BCE on the basis of mission and available space. The Navy uses an afloat Navy TACC to manage naval air assets. The Navy TACC is normally collocated with the SACC aboard the ATF command ship. The Marine Corps uses a Marine TACC to manage Marine air assets. The Marine TACC operates as a tactical air direction center ashore until control of air operations is passed to it by the Navy TACC. The NTACCS and MACC agencies manage air operations inside the AOA on behalf of the CATF and the CLF respectively. The BCE is prepared to deploy with Navy and/or Marine Corps TACC support teams and provide the same interface as with the Air Force AOC. The illustration below shows the relationship of the BCE with Navy, Marine, and Air Force elements.

BATTLEFIELD COORDINATIONATION ELEMENT INTERFACE AFLOAT



APPENDIX J
SAMPLE TARGETING TEAM SOP

This appendix provides guidelines for developing an SOP for targeting teams. Each unit must develop an SOP that is based on the unique mission, organization, equipment, personnel, and philosophy of the commander.

TARGETING TEAM SOP

The following example of a targeting team SOP covers most of the fictional areas needing standardization in corps and division targeting teams. It may be adjusted to serve as a model for brigade and lower organizations.

1. Purpose. To provide guidelines for routine functions and to delineate responsibilities for day-to-day operations in the targeting team.

2. Organization. The chairman of the targeting team is the chief of staff. In his absence, the G3 will be the acting chairman. Membership of the targeting team routinely consists of representatives from the following staff sections and major subordinate commands:

G2	G3	FSCOORD	G5
G2 Plans/Ops	G3 Plans/Ops	A/DFSCOORD*	ADA
G2 Targeting	Deception Off	ALO	Engineer
Collection Manager	EWO	Avn LO	SJA
SWO	A^2C^2	FAIO	Div/Bde LOs
LRSU Commander	SOCOORD	ChemO**	PSYOP Officer
G6			

*A/DFSCOORD = assistant division fire support coordinator

**ChemO = chemical officer

3. Conduct. The targeting team agenda is divided and briefed in two time periods--current and future operations. (An example is on page J-2.) The chief of staff directs the board process and keeps the members focused on the unit mission, commander's intent, targeting guidance, and targeting priorities. The targeting agenda is included in routine staff meetings or drills. Meeting times should be established to allow timely coordination of the parallel targeting efforts of senior and subordinate headquarters. An example of how scheduled meeting times interface between corps and division and with the ATO cycle is shown in the figure on page J-3.

a. The SWO begins the session by providing current and predicted weather and its effects on combat operations for the next 72 to 96 hours. Next, the team examines the current situation (present to 24 hours). The G2 and G3 brief the enemy and friendly situation with emphasis on current attacks being conducted. The G2 collection manager briefs battle damage collection currently in effect and possible HPT nominations for immediate reattack.

b. The current operations agenda involves enemy and friendly situation updates from the G2 and G3 that impact on the HPTL and AGM. They confirm on the ATO for the following day nominated targets or changes to targets. A significant change in the situation would warrant changing the ATO. If there are no significant changes, planning continues for the use of aircraft to support ground operations. The G3 plans officer briefs a review of deep operations planned for the next day. G3 operations briefs the concept of their operations against the targets assigned. The G2 collection manager briefs the collection plan to validate targets and pursue BDA on the basis of the target guidance and target priorities. The executors of planned deep operations brief their respective execution matrixes and conduct any remaining staff coordination needed. The mission of the DOCC is to coordinate all deep fire missions and to monitor the friendly tactical situation. This includes the following:

- Coordinating all SEAD missions.
- Developing FSCMs to support deep operations.
- Monitoring the position and combat power of friendly artillery units, particularly ATACMS units.
- Clearing all ATACMS fire missions.
- Posting the status of friendly maneuver brigades.

c. The future operations agenda involves the G2 and G3 briefing the anticipated enemy and friendly situations. A review of the war-gaming session for this time period is discussed with the chief of staff. Recommended target guidance, target priorities, and objectives are provided to the commander for approval. Targets that are to be corps or division nominated targets for the next ATO are approved and forwarded through channels to the BCE. G3 plans briefs deep operations and attacks planned for corps or division assets.

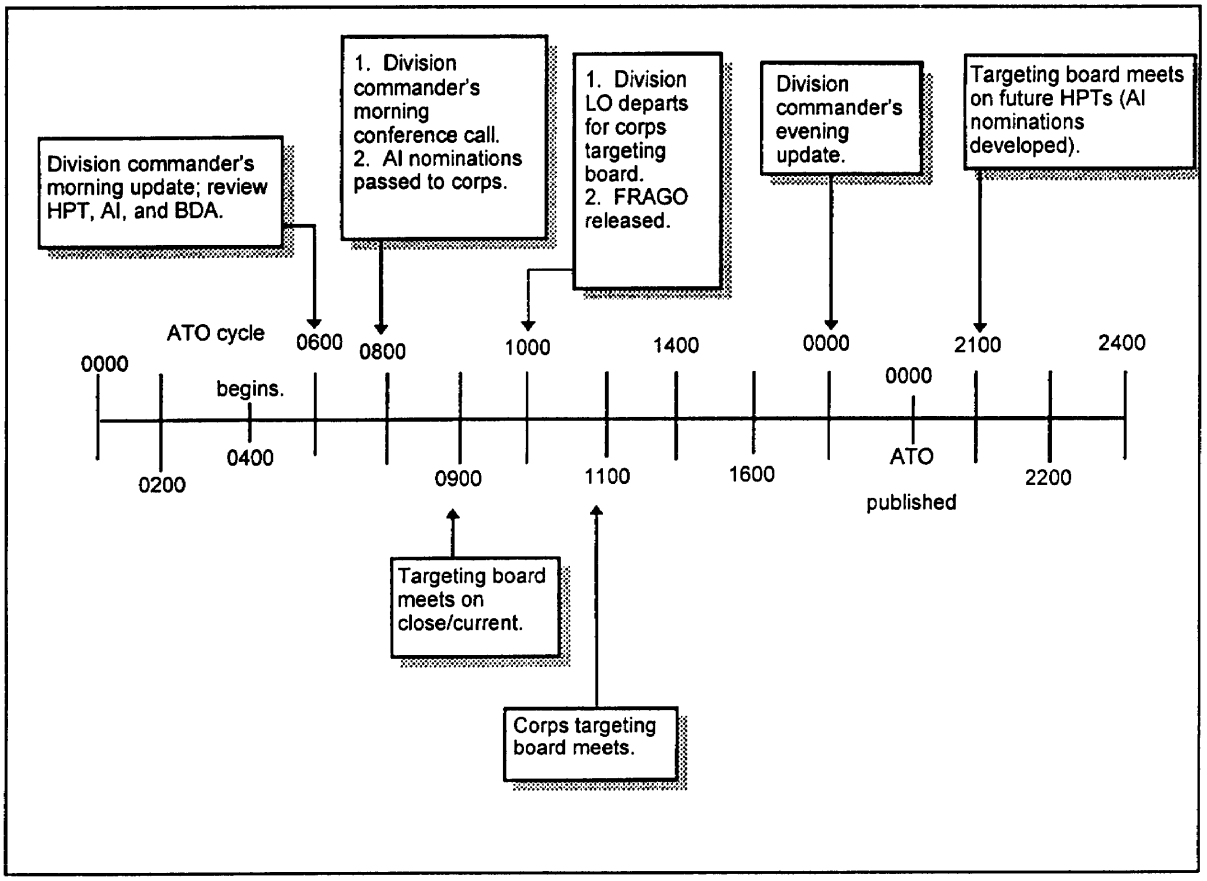
4. Responsibilities: Current Operations Agenda. The following paragraphs discuss the responsibilities of individual staff officers and sections for the current operations agenda.

a. Staff Weather Officer. The SWO briefs the weather forecast and light data that will impact on fixed- and rotary-winged aircraft and planned friendly activities in the next 96 hours.

b. G3 Operations. Briefs recently completed or ongoing attacks and their effects on the current battle. Current operations briefs the following:

- Changes to corps and corps artillery task organization.
- Current FSCMs.
- Relative combat power of all friendly maneuver brigade size units.
- Friendly maneuver unit locations.
- Friendly operations (past 12 hours).
- Friendly scheme of maneuver (next 24 hours).

c. G2 Targeting Officer. The G2 targeting officer presents BDA obtained from division, corps, and EAC intelligence-gathering assets on critical HPTs attacked by division, corps, supporting, and subordinate units. Specificity and timeliness are key. The targeting officer must be proactive in receiving BDA because the degradation of specified targets may be a trigger mechanism for future operations. The Corps G2 and Corps ACE help the targeting officer review and formulate BDA. Nominations for immediate reattack of HPTs are made at this time.



d. G2 Plans. The G2 plans officer briefs the disposition of important enemy units and associated systems impacting on the unit mission. He also briefs the most likely enemy COA in the next 24 to 48 hours.

e. G3 Plans. The G3 plans officer reviews the plans for the next 24 to 48 hours that have been handed off to subordinate units for execution. He briefs the current concept of operations.

f. FSE. The A/DFSCOORD discusses the approved targeting guidance, HPTL, AGM, and TSS with the team in light of the G2 and G3 situation briefings. The team determines if changes are required.

g. G2 Collection Management Officer. The collection management officer (CMO) reviews the intelligence collection plan for all division, corps, and EAC systems that will assist in targeting. The CMO highlights those HPTs which cannot be covered with available assets. He receives guidance from the chief of staff on specific or additional requirements.

h. Air Liaison Officer. The ALO discusses target nominations anticipated to be included in the next ATO. The following is presented for each target:

- Description.
- Location.
- Type and amount of aircraft to attack (package).
- Ordnance.
- Time on target.

Any significant changes based on the friendly and/or enemy situation that require alteration of the ATO must be approved by the chief of staff.

i. G5 Civil-Military Operations Officer. The G5 CMO officer briefs the current civilian situation. He covers civilian interference on the battlefield and the CMO mission. He briefs activities being employed by the unit to handle civilian problems.

j. Operators. Representatives of the executing agencies of each deep operation (corps and/or division avn, LRSU, SOF, and others as needed) brief their execution matrix. They may request input or additional guidance from the chief of staff.

5. Responsibilities: Future Operations Agenda. The following paragraphs discuss the responsibilities of individual staff officers and sections for the future operations agenda. There are three primary briefers for the future operations agenda. They are the G2 and G3 plans officers and the FSE representative (usually the A/DFSCOORD). Others who might brief during the future operations agenda (depending on the effect targeting has on their mission areas) include the following:

- Aviation LO.
- FSE targeting officer.
- Engineer officer.
- Deception officer.
- Electronic warfare officer.
- Special operations coordination element representative.
- Staff judge advocate representative.
- LRSU commander.
- Air defense officer.
- Liaison officers.
- Civil affairs representative.
- Chemical officer.
- PSYOP officer.
- Signal support officer.

a. G2 Plans Officer. The G2 plans officer briefs the disposition of important enemy units and associated systems impacting on the unit mission. He also briefs the most likely enemy COAs. This briefing includes enemy follow-on forces anticipated to be committed in the unit sector and other forces that will affect future operations. The briefing includes potential HPTs which, if nominated for attack, meet the commander's intent and if not attacked will significantly impact on future operations.

b. G3 Plans Officer. The G3 plans officer will brief any divisional or corps/division operations planned during this time period. He also briefs any branches or sequels to the current OPLAN.

c. FSE. The D/AFSCOORD discusses deep attack options and presents a decision briefing on proposed targeting guidance and priorities. This includes:

- Recommended targeting guidance, objectives, and priorities.
- Recommended HPTL, AGM, and TSS.
- Proposed prioritized target list to be forwarded to higher headquarters for execution and targeting taskings for subordinate units.

d. Aviation LO. The Aviation LO is present to answer any questions that the team may have on the capabilities of Army aviation assets. He takes the lead in planning attacks on all viable targets with aviation assets.

e. FSE Targeting Officer. The FSE targeting officer prepares information briefed by the D/AFSCOORD to include the following:

- Targeting guidance and priorities.
- The targeting team meeting agenda.
- HPTL, AGM, and TSS.

The HPTL includes HPT nominations submitted by the corps ACE and subordinate units to the unit FSE. The targets are prioritized on the basis of approved targeting guidance and priorities. The targeting officer also updates the situation map and provides the team with all current and proposed FSCMs. He is also responsible for consolidating, coordinating, providing to the team for approval, and disseminating the restricted and protected target list. The list includes historical, religious, educational, civic, and humanitarian sites within the unit boundaries.

f. Engineer Officer. The unit engineer provides expertise on enemy capabilities for bridging, breaching, and infrastructure construction. He helps the targeting team determine target feasibility of enemy engineer equipment. Specifically, the engineer representative must be prepared to discuss such things as the following:

- The width of gap the enemy can bridge.
- The depth of FASCAM minefield the enemy can breach and location of breaching assets.
- The ability of the enemy to repair bridges, roads, airfields, and ports.

He also provides information on planned obstacles that need to be included in target planning.

g. Deception Officer. The deception officer advises the team on conflicts between targeting and deception plans.

h. Electronic Warfare Officer. The EWO advises the board members on the capabilities and availability of all EW assets.

i. Special Operations Coordination Element Representative. The special operations coordination element (SOCOORD) advises the board on SOF missions in the area of operations and their capabilities as they relate to targeting. He also helps formulate FSCMs established to protect SOF forces.

j. Staff Judge Advocate Representative. The staff judge advocate representative will ensure that the targeting team does not violate the ROE or the law of land warfare.

k. LRSU Commander. The LRSU commander is normally collocated with the ACE. He advises the team on LRSU missions in the area of operations and their capabilities as they relate to targeting. He also pays special attention to the FSCMs established to protect his teams. He is prepared to brief during all phases on the LRSU execution matrix.

l. Air Defense Officer. The ADO is present to help deconflict airspace and airspace management and coordination.

m. Liaison Officers. The division and/or brigade LOs address the concerns of their commanders pertaining to targeting and future operations. They are prepared to discuss their commander's targeting priorities, future plans, and AI target nominations. The discussion prepares the unit staff to support and anticipate the targeting needs of subordinate units. The LOs are also prepared to discuss updates to FSCMs.

n. Civil Affairs Representative. The G5 verifies the protected and restricted target list and helps the board answer questions on collateral damage issues. Civil affairs conducts detailed assessments of the local population and the area of operations. The assessments are used to provide information on which targets might have positive or negative effects on the morale or infrastructure and logistics system of the enemy. He also advises on the expected number and direction of flow of dislocated civilians and how they will interfere with military operations.

o. Chemical Officer. The unit chemical officer provides expertise on the weapons of mass destruction capability of the enemy. He helps the targeting team determine target feasibility of the weapons. He will also advise on the impact that the facilities (employment, storage, and production) would have on the battlefield and friendly operations, if attacked. He also provides guidance on the employment of smoke and obscurant and their impact on weapon systems and sensors.

p. PSYOP Officer. The PSYOP officer analyzes potential target audiences on the basis of their significance in accomplishing a specific mission. Participating in the target nomination process, he selects targets that are susceptible to PSYOP and whose behavior, when properly channeled, will support accomplishing the mission. He coordinates available PSYOP assets to engage the targets. He also helps coordinate delivery systems to place PSYOP products, such as leaflets, in the target area.

q. Signal Support Officer. The G6 provides expertise on the employment of friendly information systems. He advises on integration of the five signal support functions. The functions are as follows:

- Communications.
- Automation.
- Visual information.
- Printing and publications.
- Records management.

The five functions provide a fully functioning, synchronized information system. He coordinates with the chief of staff, the G3, and other targeting team members as required.

SAMPLE TARGETING MEETING AGENDA

WHAT	WHO	WHY
CURRENT SITREP/CCIR	G3 OPERATIONS	SITUATION UPDATE
CURRENT ENEMY SITUATION	ASPS	PROVIDE PLANNING BASELINE
SPECIAL STAFF CONSIDERATIONS	SPECIAL SITUATION	AS REQUIRED
AIR STATUS	ALO	UPDATE ALLOCATIONS
ARMY AVIATION STATUS	AVN LO	REVIEW STATUS and MISSION
COLLECTION PLAN	CM&D	PROJECTED 72-HOUR FOCUS
IEW STATUS	IEWO	REVIEW BASELINE PRIORITIES
24, 48, 72, AND 96 HOUR FORECAST	G3 PLANS ASPS TARGETING OFFICER	PROJECTED DIVISION OPERATIONS PROJECTED ENEMY SETS TARGET NOMINATIONS
APPROVE NOMINATIONS; DEEP TARGET FOCUS	CHIEF OF STAFF	DECISION
REVIEW ATTACK GUIDANCE/HPTs	DFSCOORD	VALIDATE; RECOMMEND CHANGES
FINAL GUIDANCE	CHIEF OF STAFF	

NOTE: 24, 48, 72, and 96 hours correspond to ATO cycles. The 24-hour forecast is the current ATO.

TARGET NOMINATION PROCESS

The joint targeting and target nomination process that is used by XVIII Airborne Corps when operating as a JTF headquarters is outlined in the figure on page J-9. The 12 numbers depicted in the figure indicate where important fictions and/or actions occur or where targeting products are issued. The numbered paragraphs below explain the major events and correspond to the numbers in the figure. This diagram and the explanation is included as a TTP that has proved successful. XVIII Airborne Corps and their subordinate command the 10th Mountain Division (Light) have used it during various contingency missions. It is included as an example of one way to participate in the target nomination process.

Event 1. Components submit prioritized target nominations to the JFACC through their representatives in the JAOC. Target nominations will include as a minimum the information required by SOP.

Event 2. ARFOR target nominations are submitted to the BCE collocated with the JAOC.

Event 3. Copies of component target nominations are submitted to the JFFC for review at the same time they are sent to the JFACC. Component representatives at the JTCB will also receive copies of target nominations for their unit. The component representatives at the JTCB must be fully attuned to the priorities, objectives, and supporting rationale behind their commander's targeting effort. Failure to receive timely targeting information will result in an inability of component representatives to properly represent their commander's interest in the JTCB.

Event 4. Targets will often be developed by higher headquarters (NCA or CINC) and forwarded to the JTF via the JTSG. These will most often be critical HVTs of strategic military or political importance. The targets will normally be forwarded from the JTSG to the JTF JTCB through the JIC or by direct tasking order to the JTF.

Event 5. The JIC will produce potential targets on the basis of the JTF commander's targeting guidance and priorities. The JIC will consolidate targets received from higher headquarter with those targets produced in the JIC and forward them to the JFFC for review.

Event 6. The JFFC will function as the clearing house for all JTF staff and higher headquarters target nominations. The JFFC will resolve duplications, make recommendations for attack for review by the J3, and produce a prioritized list of targets.

Event 7. The JFFC will forward the approved list of JTF-level target nominations to the JFACC for compilation with component target nomination into the recommended JIPTL.

Event 8. When all component and JTF staff target nominations are received by the JFACC, several key targeting functions take place. The JFACC will develop his own list of targets on the basis of his mission as well as the JTF commander's targeting guidance and priorities. The JFACC compiles a list of targets consisting of his targets as well as component and JTF-level target nominations. All potential targets are processed through the JFACC's GAT board. The board

is the first step in the process of balancing component priorities with the overall objectives of the commander, JTF. The competing concerns are prioritized against available assets in order to produce the following products:

- Proposed JIPTL. The JFACC will produce a proposed JIPTL on the basis of available assets and the ability to service targets. The JFACC may also recommend the use of assets other than air assets to attack targets. The recommendations must be approved by the JTCB. The JIPTL is a prioritized list of targets which clearly delineates targets that will be attacked from those that will not be attacked due to competing concerns and asset limitations. The prioritized list of targets and the projected "cut line" showing which targets will not be struck is essential. It gives feedback to the components and the JTF staff on how their specific target nominations do or do not fit into the execution of fires.

- Apportionment Recommendation. On the basis of the proposed JIPTL, the JTF commander targeting guidance, targeting priorities, and mission objectives, the JFACC will recommend an air apportionment decision for approval by the commander, JTF. The recommendation defines the level of air effort by percentage of available sorties to be applied to CA, CAS, and AI. This is the JFACC's recommendation for the employment of air forces to meet the JTF commander's targeting and fires requirements for the ATO/ITO cycle being planned.

- CAS Allocation. The JFACC may also make recommendations for the allocation of CAS sorties to surface components. The recommendation would normally address the degree of centralized control for CAS. He will give the appropriate consideration to those components which do not have any organic CAS assets and the main effort as designated by the JTF commander. The recommendation might include the following:

  — How many sorties will be allocated to the components for planning versus how many sorties will be held by the JFACC to be pushed out as the situation demands.

  — The specific number of allocated sorties for each surface component.

All of the products produced by the JFACC during this initial phase of the targeting process will be forwared to the JTCB for approval.

Event 9. The products produced by the JFACC are briefed before the JTCB. The focus and objectives of the JTCB are discussed in Chapter 3. This process ensures the proper prioritization and synchronization of the JTF targeting and fires effort. The JTCB provides the forum for component representatives to voice concerns with regard to the JIPTL, apportionment recommendation, and CAS allocation. The JTCB will modify or validate the JFACC's recommendation and prepare them for final approval by the commander, JTF.

Event 10. The JTCB will also be the forum for finalizing recommended component taskings to support the deep operations and interdiction efforts. As stated in event 8, the JFACC may recommend the tasking of other assets or components to strike targets on the proposed JIPTL. The chairman of the JTCB will direct the preparation of the final recommended--

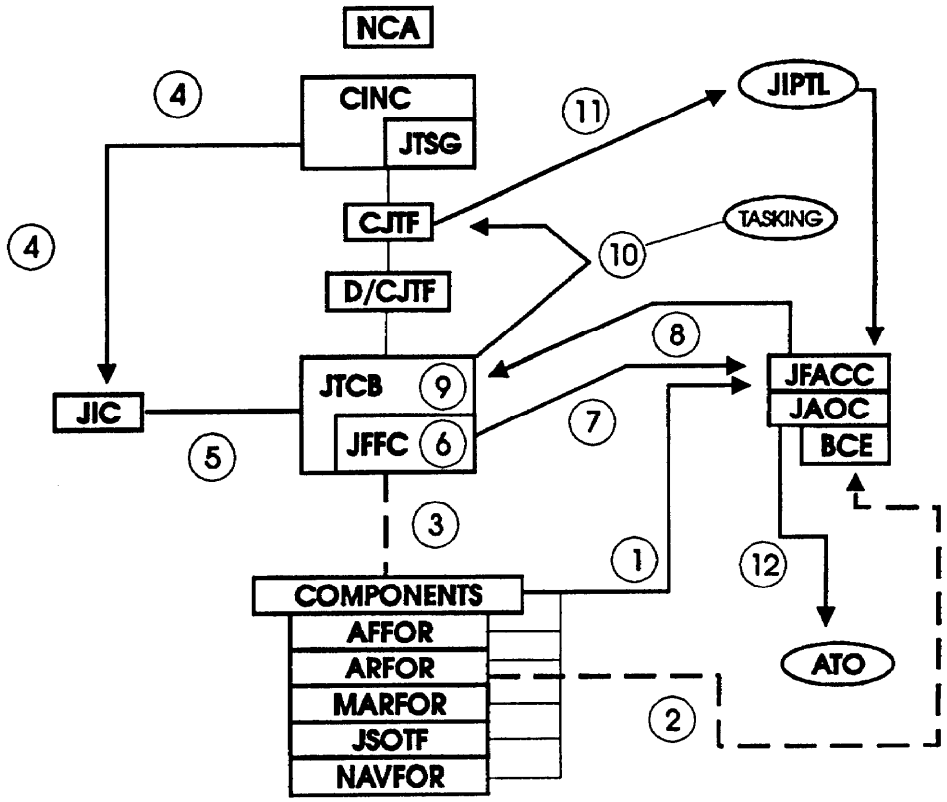
- JIPTL.
- Air apportionment decision.
- CAS allocation.
- Component target strike taskings.

The recommendations are forwarded to commander, JTF for final decision.

Event 11. The commander, JTF will make the final decisions on all recommendations coming from the JTCB. The JFFC through the J3 will promulgate the commander, JTF decisions to all components. The J3 will publish a separate tasking for components to support execution of the JIPTL. In some cases, if it is appropriate, the J3 will allow the JFACC to task the components directly through publication of the ATO/ITO.

Event 12. The final step of the targeting process will be the publishing of the final ATO/ITO by the JFACC.

JOINT TARGETING COORDINATION BOARD AND JTF TARGETING PROCESS



APPENDIX K
COMMON DATUM

For joint agencies to proper/y coordinate targeting functions, they must be able to exchange information by using a common frame of reference regarding the area *of operations. A small detail that has tremendous implications supporting this* ***common reference,*** *especially if overlooked, is ensuring planners* and *operators use the correct datum.*

During the first days of Operation Desert Storm (ODS), the Air Force reported that B-52 raids consistently fell short of the target. The target locator was on a different datum from the B-52 navigation system. After application of datum shifts, B-52 missions were successful. In some cases, target coordinates determined by observers were based on a different map datum than that used by the fire support planners and execution systems. Location variances exceeded 700 meters. In other ODS examples, a GPS receiver position was compared to a paper map position and in many cases the positions varied by hundreds of meters--the primary reason was different datums. In another example, troops deploying to Somalia found the maps available were a mix of Russian maps found in Gauss Kruger (GK) and World Geodetic System (WGS) 72.

DATUM AND PROJECTION AWARENESS

Personnel working in any organization which exchanges information regarding position locations must be aware of the need for using a common datum. In the past this was not viewed as critical because weapons technology and employment doctrine did not require highly accurate positions. The possibility of deployment to many new foreign locations, where the only maps are on local datums and foreign projections, make precise coordinates vital to mission success. The problem is even more critical with the advent of growing technology (for example, global positioning system [GPS], ATACMS, tactical land attack missile system [TLAMS], and so forth). Ignoring the map datum could result in fratricide or gross target location errors.

A datum is the mathematical model of the earth used to calculate position coordinates on any map, chart, or survey system. Many countries use their own datum(s) when they make their maps and survey. The *local datums* may produce coordinates which vary greatly from datums used by US forces. Even within the US Department of Defense, different datums are in use or have been used.

Presently there are more than 1,000 datums in use. The DMA is concerned with only 200 of these which are found on paper maps, digital mapping products, and other products provided to the user. As datums are shifted to a common grid, the change in the location of a unit may be more than 1,000 meters. There are different datums for both horizontal and vertical reference. Most vertical datums use mean sea level for elevation, but they may use any of over a hundred different horizontal position datums. DMA is reducing the number of datums used for their products. As map products are updated, they will be updated with standard datums and ellipsoids. Do not mix old and new products. The DMA decided to use WGS 84 in most of the world. During transition, some paper products will not match digital products.

There can be several error possibilities in air ground operations if multiple datums are used. A few are listed below.

- Friendly position location errors.
- Enemy target location errors.
- CSAR location errors.
- Navigation aid (NAVAID) use.
- Aircraft vectoring errors.
- Airdrop errors.
- Airspace control measure errors.
- Air defense errors.

DATUM USE

The JFC must identify which datum information is to be used within the joint force for exchange of position information. Subordinate personnel must know the answer to these questions:

- What is the operational datum?
- On what datum are the target coordinates?
- On what datum are the position coordinates?
- On what datum are fire control systems?
- On what datum are the current operational maps?

CHECKING DATUM AND CONVERTING COORDINATES

Datums can be checked. All maps and products that the DMA distributes have the datum printed somewhere in the margin. The figure below is an example of typical datum information provided in the margin of a map. The BCE must procure DMA-published software called MADTRAN, which can convert coordinates from latitude and longitude to universal transverse mercator (UTM) or MGRS, and the reverse. It can also transform coordinates between WGS 84 and over a hundred other datums. MADTRAN 4.0, the current version, comes with instructions and will work on any IBM PC compatible computer with a 5 1/4 inch floppy drive. It can be ordered from wherever the user procures DMA products by using stock number MADTRANIBMPC.

MAP MARGIN DATUM EXAMPLE

ELLIPSOID .....WORLD GEODETIC SYSTEM 1984
GRID.....1,000 METER UTM ZONE 51
PROJECTION ..... TRANSVERSE MERCATOR
VERTICAL DATUM .....MEAN SEA LEVEL
HORIZONTAL DATUM .....WORLD GEODETIC SYSTEM 1984
HYDROGRAPHIC DATUM..... APPROXIMATE LEVEL OF LOWEST

LOW WATER
PRINTED BY.....DMAHTC 4-94

COORDINATE CONVERSION WGS 84 TO TOKYO
GRID: Add 156m.E; Subtract 712m.N.
Geographic: Add 7.0 “Long.; Subtract 8.8"Lat.

GLOSSARY

A

A^2C^2	Army airspace command and control
AA	assembly area
AAGS	Army air-ground system
AAW	anti-air warfare
AAWC	anti-air warfare commander
AAWS	anti-air warfare system, anti-air warfare section
ABCCC	airborne battlefield command & control center
ACA	airspace coordination authority, airspace coordination area
ACB	air campaign branch
ACC	air combat command
ACCI	Air Combat Command Instructions
ACE	analysis and control element, aviation control element, aviation combat element (USMC)
ACM	airspace control measures
ACO	airspace control order
ACR	armored cavalry regiment
ACUS	Army common user system
ADA	air defense artillery
ADAM	area denial artillery munitions
A/DFSCOORD	assistant division fire support coordinator
adj	adjacent
ADO	air defense officer
ADOCS	automated deep operations coordination system
ADP	automatic data processing
AFATDS	advanced field artillery tactical data system
AFFOR	Air Force forces
AFP	Air Force Pamphlet
AFSOC	Air Force special operations command
AFSOF	Air Force special operating forces
AFIWC	Air Force information warfare center
AGM	attack guidance matrix
AHB	attack helicopter battalion
AI	air interdiction
AIRSUPREQ	air support request
ALLC	air lift coordination call
ALLOREQ	allocation/request
ALO	air liaison officer
alt	alternate
AMC	air mobility command
AME	air mobility element
AMLS	air space management liaison section
ammo	ammunition
ANGLICO	air and naval gunfire liaison company
ANGPLT	air naval gunfire platoon
AO	area of operations
AOA	amphibious objective area, air officer
AOC	air operations center
AOR	area of responsibility
AP	armor piercing
APAM	antipersonnel and antimaterial
APERS	antipersonnel
AR	armor
AREC	air resource element coordinator
ARFOR	Army forces
ARG	amphibious ready group
ARLO	air reconnaissance liaison officer
ARSOF	Army special operating forces
arty	artillery
ASAS	all-source analysis system
ASC(A)	air support control (airborne)
ASCS	air support control section
ASM	airspace management
ASOC	air support operations center

ASPS	all-source production section
ASUWC	antisurface warfare commander
ASWC	antisubmarine warfare command
ATACC	advanced tactical air control center
ATACMS	Army tactical missile system
ATACS	amphibious tactical air control system
ATCS	air traffic control section
ATF	amphibious task force
ATGM	antitank guided missile
atk hel	attack helicopter
ATMDE	Army theater ballistic missile defense element
ATO	air tasking order
ATOB	air tasking order branch
avn	aviation
AWACS	airborne warning and control system

B

BCE	battlefield coordination element
BD	base detonating
BDA	battle damage assessment
bde	brigade
bldg	building
BLT	battalion landing team
bn	battalion
BOS	battlefield operating system
BP	battle position

C

C^2	command and control
C^2W	command and control warfare
C^2WC	command and control warfare commander
C^3CM	command, control, and communication countermeasures
C^3	command, control, and communication
C^4I	command, control, communications, computers, and intelligence
CA	combat assessment, counterair, civil affairs
C/A	corps artillery
CAS	close air support
CATF	commander amphibious task force
cav	cavalry
C/B	counterbattery
CBR	counterbattery radar
CBU	cluster bomb unit
CCIR	commander's critical information requirements
C-CS	communications-computer systems
CCT	combat control team
CE	command element
CFL	coordinated fire line
CG	guided missile cruiser
CGS	common ground station
ChemO	chemical officer
CI	counterintelligence
CIA	counterintelligence agency
CID	combat intelligence division
CINC	commander in chief
CIO	Central Imagery Office
CLF	commander landing force
cml	chemical
CMO	collections management officer, civil-military operations
CMR	countermortar radar
COA	course of action
COC	current operations cell
COD	combat operations division
COLT	combat observation/lasing team
COMAFFOR	commander air forces
COMCARGRU	commander carrier group
COMINT	communications intelligence
COMSEC	communications security
COP	combat observation post

COS	current operations section
CP	command post, concrete-piercing
CPD	combat plans division
Cphd	Copperhead
CRC	control and reporting center
CRE	control and reporting element
CS	combat support
CSR	controlled supply rate
CSS	combat service support
CSSC	combat service support center
CSSE	combat service support element
CT	counter terrorism
CTAD	corps target acquisition detachment
CTAPS	contingency tactical air control system (TACS) automated processing system
CTF	commander task force
CTT	commander's tactical terminal
CUCV	commercial utility cargo vehicle
CV	aircraft carrier
CVW	carrier air wing
CWC	composite warfare command, composite warfare commander

D

DA	direct action
D/A	division artillery
DAG	division artillery group
DAS	deep air support
DASC	direct air support center
DCI	director of combat intelligence
D/CJTF	deputy commander joint task force
DCO	director of combat operations
DD	destroyer
DDG	guided missile destroyer
DF	direction finding
DIA	Defense Intelligence Agency
div	division
div arty	division artillery
DIA	Defense Intelligence Agency
DIRMOBFOR	director of mobility forces
DMA	Defense Mapping Agency
DO	deputy of operations
DOB	defensive operations center
DOCC	deep operations coordination center
DP	decision point
DPICM	dual-purpose improved conventional munitions
DS	direct support
DSM	delivery standards matrix
DSP	defense support program
DST	decision support template
DTG	date-time group
DZ	drop zone

E

EA	electronic attack, engagement area
EAC	echelons above corps
EAD	echelons above division
EC	electronic combat
ech	echelon
ECM	electronic countermeasures
ECOA	enemy courses of action
EEFI	essential elements of friendly information
EFVS	electronic fighting vehicle system
eff rpts	effective reports
ELINT	electronic intelligence
engr	engineer
ENSCD	enemy situation and correlation division
EP	electronic protection
EPB	electronic preparation of the battlefield
EPDS	electronic processing and dissemination system

EPW	enemy prisoner of war
ERP	effective radiated power
ETUT	enhanced tactical user terminal
ES	electronic warfare support
ESM	electronic warfare support measure
EW	electronic warfare
EW/C	early warning/control
EWO	electronic warfare officer
EWSO	electronic warfare staff officer

F

FA	field artillery
FAAD	forward area air defense
FAE	fuel-air explosives
FAC	forward air controller
FAC(A)	forward air controller (airborne)
FAIO	field artillery intelligence officer
FARP	forward arming and refueling point
FASCAM	family of scatterable mines
FCE	fire control element
FCT	firepower control team
FDC	fire direction center
FEBA	forward edge of the battle area
FFA	free-fire area
FFC	force fires coordinator
FFCC	force fire coordination center
FID	foreign internal defense
FIST	fire support team
FLIR	forward-looking infrared
FLO	fighter liaison officer
FLOT	forward line of own troops
FM	field manual, frequency modulated
FO	forward observer
FOB	forward operational base
FORSCOM	forces command
FOS	future operations section
FOTC	force-over-the-horizon coordinator
FPF	final protective fires
FRAGO	fragmentary order
FS	fire support
FSC	fire support coordinator (Marine)
FSCC	fire support coordination center (Marine)
FSCOORD	fire support coordinator
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSE	fire support element
FSEM	fire support execution matrix
FSMAA	fire support mission area analysis
FSO	fire support officer
FSSG	force service support group
fwd	forward
FY	fiscal year

G

GAT	guidance, apportionment, and targeting (meetings)
GCE	ground combat element
GCS	Guardrail common sensor
GK	Gauss Kruger
GLO	ground liaison officer
GP	general purpose
GPS	global positioning system
GRCS	Guardrail common sensor
GS	general support
GSM	ground station module
GSR	general support reinforcing
G/VLLD	ground/vehicular laser locator designator

H

HC	hexachloroethane (smoke)
HCS	helicopter coordination section

HDC	helicopter direction center
HE	high explosive
HEAT	high-explosive antitank
hel	helicopter
HEP	high-explosive plastic
HES	high-explosive spotting
HF	high frequency
HIMAD	high to medium air defense
HN	host nation
HPT	high-payoff targets
HPTL	high-payoff target list
HQ	headquarters
HQDA	Headquarters Department of the Army
HUMINT	human intelligence
HUMMWV	high-mobility multipurpose wheeled vehicle
HVT	high-value target

I

IAW	in accordance with
ICM	improved conventional munitions
ID	identification, infantry division
IEW	intelligence and electronic warfare
IEWSO	intelligence and electronic warfare support officer
IGRV	Improved Guardrail V
illum	illumination
ILO	in lieu of
IMINT	imagery intelligence
IN	infantry (table)
inf	infantry
INFLTREP	in flight report
INTEL EST	intelligence estimate
IPB	intelligence preparation of the battlefield
IPDS	imagery processing and dissemination system
IR	information requirements
ISM	intelligence synchronization matrix

J

JAAT	joint air attack team
JAOC	joint air operations center
JFACC	joint force air component commander
JFC	joint force commander
JFFC	joint force fires coordinator
JFLCC	joint force land component commander
JFMCC	joint force Marine component commander
JFSOC	joint force special operations component
JFSOCC	joint force special operations component commander
JIC	joint intelligence center
JIPTL	joint integrated prioritized target list
JMCC	joint movement control center
JOC	joint operations center
joint ATO	joint air tasking order
JPTL	joint prioritized target list
J-SEAD	joint suppression of enemy air defenses
JSOTF	joint special operations task force
JSOA	joint special operations area
JSRC	joint search and rescue center
JSTARS	joint surveillance and target attack radar system
JTAGS	joint tactical ground system
JTCB	joint targeting coordination board
JTF	joint task force
JTSG	joint targeting steering group

K

km	kilometer

L

LAAD	low-altitude air defense
LAAM	light antiaircraft missile

LAN	local area network
LC	line of contact
LCC	land component commander
LD	line of departure
LF	landing force
LLTR	low-level transit routes
LPA	long periodic antenna
LRC	logistics readiness center
LRP	limited response package
LRS	long-range surveillance
LRSD	long-range surveillance detachment
LRSU	long-range surveillance units
LO	liaison officer
LOC	lines of communication
LZ	landing zone

M

m	meter
MACCS	Marine air command and control system
MAGTF	Marine air-ground task force
MAP	master attack plan
MARFOR	Marine forces
MARLO	Marine liaison officer
MATCD	Marine air traffic control detachments
MCA	movements control agency
MCC	Marine component commander
MCOO	modified combined obstacles overlay
MCS	maneuver control system
MDCI	multi-disciplined counter intelligence
MEA	munitions effects assessment
mech	mechanized
MEF	Marine expeditionary force
METL	mission-essential task list
METT-T	mission, enemy, terrain, troops, and time available
MEU	Marine expeditionary unit
MI	military intelligence
MITT	mobile integrated tactical terminal
MLE	Marine liaison element
MLRS	multiple launch rocket system
mm	millimeter
mnvr	maneuver
mort	mortar
MOS	military occupational speciality
MP	military police
MPRDFS	manportable radio direction-finding system
MPS	maritime pre-positioned squadron
MRD	motorized rifle division
MRL	multiple rocket launcher
MRR	motorized rifle regiment
MS	maritime support
MSE	mobile subscriber equipment
MSSG	MEU service support group
MT	mechanical time
MTI	moving target indicator
MTOE	modification tables of organization and equipment
MTSQ	mechanical time superquick (fuze)
mtze	motorized

N

NAF	numbered air force
NAI	named area of interest
NALE	naval liaison element
NAVAID	navigation aid
NAVFOR	Navy forces
NAVSOF	naval special operating forces
NBC	nuclear, chemical, biological
NCA	National Command Authority
NEF	naval expeditionary force
NFA	no-fire area

NGF	naval gunfire
NGLO	naval gunfire liaison officer
NLO	naval liaison officer
NMJIC	National Military Joint Intelligence Center
NSA	National Security Agency
NTACS	Navy tactical air control system
NTCS-T	naval tactical command system afloat
NUKE	nuclear

O

OAS	offensive air support
OB	order of battle
ODS	Operation Desert Storm
OIC	officer in charge
O/O	on order
OOB	offensive operations branch
OOTW	operations other than war
OP	observation post
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
ops	operations
OPSEC	operations security
OPTASKLINK	operational tasking data link
OPTEMPO	operating tempo
OTC	officer in tactical command

P

PD	point-detonating
PDG	People's Democratic Group
PIR	priority intelligence requirements
pi reps	pilot reports
PL	phase line
PME	prime mission equipment
POF	priority of fires
POL	petroleum, oils, and lubricants
prep	preparation
pri tgt	priority target
PSS	plans and support section
PSYOP	psychological operations
pub	publication
PZ	pickup zone

Q

QRP	quick response package

R

R	reinforcing
RAAMS	remote antiarmor mine system
RAG	regimental artillery group
RAP	rocket-assisted projectile
RCC	rescue coordination center
RDF	radio direction finder
RDO	radar deployment order
REC	radio-electronic combat
RECCE	reconnaissance exploitation
recon	reconnaissance
regt CP	regimental command post
REMBASS	remotely monitored battlefield sensor system
RFA	restrictive fire area
RFL	restrictive fire lines
RISTA	reconnaissance, intelligence, surveillance, and target acquisition
ROE	rules of engagement
ROZ	restricted operations zone
RSR	required supply rate
RSTA	reconnaissance, surveillance, and target acquisition
RVT	remote video terminal

S

SA	strategic attack
SAC	supporting arms commander

SACC	supporting arms coordination center
SALT	supporting arms liaison team
SAM	surface-to-air missile
SAR	side-looking aperture radar
SEAD	suppression of enemy air defenses
SEAL	sea-air-land team
SEWC	space and electronic warfare center
SF	special forces
SHORAD	short-range air defense
sig	signal
SIGINT	signals intelligence
SIR	specific information requirements
SRIG	surveillance, reconnaissance, and intelligence group
SITMAP	situation map
SJA	staff judge advocate
SLAR	side-looking airborne radar
SLO	special operations liaison officer
SOA	special operations aviation
SOC	special operations command, special operations capable
SOCA	submarine operations coordinating agency
SOCCE	special operations command and control element
SOCOORD	special operations coordinator
SOF	special operations force
SOLE	special operations liaison element
SOP	standing operating procedure
SOR	specific orders and requests
SORTIEALOT	sortie allotment
SP	self-propelled
spot reps	spot reports
sqdn	squadron
SR	special reconnaissance
SRBM	short-range ballistic missile
SSM	surface-to-surface missile
STACCS	Standard Theater Army Command and Control System
SWC	strike warfare commander
SWO	staff weather officer
SYSAD	system administration branch
SYSCON	systems control center

T

TA	target acquisition
TAA	tactical assembly area
TAC	tactical air controller
tac	tactical
TAC(A)	tactical air controller (airborne)
TACC	tactical air command center (USMC), tactical air control center (Navy)
TACFIRE	tactical fire direction system
TACON	tactical control
TACOPDAT	tactical operations data
TACP	tactical air control party
TACS	tactical air control system
TADC	tactical air direction center
TADIL	tactical digital information links
TAGS	theater air-ground system
TAI	target area of interest
TALCE	tactical airlift control element
TAO	tactical air officer
TAOC	tactical air operations center
TAR	tactical air reconnaissance
TARBULS	target bulletins
TBD	to be determined
TBM	tactical ballistic missile
TCE	technical control element
TCF	tactical combat force
TEB	tactical exploitation battalion
TF	task force
TGO	terminal guidance operations

TgtIntelO	targeting intelligence officer
THMT	tactical high-mobility terminal
TIC	target information center
TIO	target information officer
TIS	target information section
TLAMS	tactical land attack system
TLE	target location error
TMD	theater missile defense
TMDA	targeting management and development application
TNL	target nomination list
TOC	tactical operations center
TOT	time on target
TPFDD	time-phased force deployment data
TPL	time-phase line
TRAC	tactical radar collator
TRACE	total risk assessment cost estimate
TRP	theater response package
TSM	targeting synchronization matrix
TSS	target selection standards
TTP	tactics, techniques, and procedures
TVA	target value analysis

U

UAV	unmanned aerial vehicle
UBL	unit basic load
UHF	ultrahigh frequency
US	United States
USAFAS	United States Army Field Artillery School
UW	unconventional warfare

V

VHF	very high frequency
VT	variable time
VTOL	vertical takeoff and landing

W

WARNORD	warning order
WGS	World Geodetic System
WLR	weapons-locating radar
WP	white phosphorus
wo	without
WOC	wing operations center
WSB	weather support branch

X

XO	executive officer

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By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Acting Administrative Assistant to the
Secretary of the Army
01531

By Direction of the Commandant of the Marine Corps:

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Lieutenant General, U.S. Marine Corps
Commanding General
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