Chapter 2

Common Tactical Concepts and Graphic Control Measures

In war, obscurity and confusion are normal. Late, exaggerated or misleading information, surprise situations, and counterorders are to be expected.

Infantry in Battle, 1939

The tactician must understand the common tactical concepts and definitions used by the military profession in the conduct of offensive and defensive operations. This chapter introduces the doctrinal hierarchy that forms the framework by which this manual is organized. The concepts and terms in this chapter are common to most operations. This manual discusses those concepts and terms specific to a type or form of operations in the corresponding chapter. For example, Chapter 4 discusses the objective as a control measure.

DOCTRINAL HIERARCHY

2-1. Figure 2-1 on page 2-2 shows the doctrinal hierarchy and relationship between the types and subordinate forms of operations. While an operation's predominant characteristic labels it as an offensive, defensive, stability, or

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support operation, different units involved in that operation may be conducting different types and subordinate forms of operations, and often transition rapidly from one type or subordinate form to another. The commander rapidly shifts from one type or form of operation to another to continually keep the enemy off balance while positioning his forces for maximum effectiveness. Flexibility in transitioning contributes to a successful operation. A good tactician chooses the right combinations of combined arms to place the enemy at the maximum disadvantage.

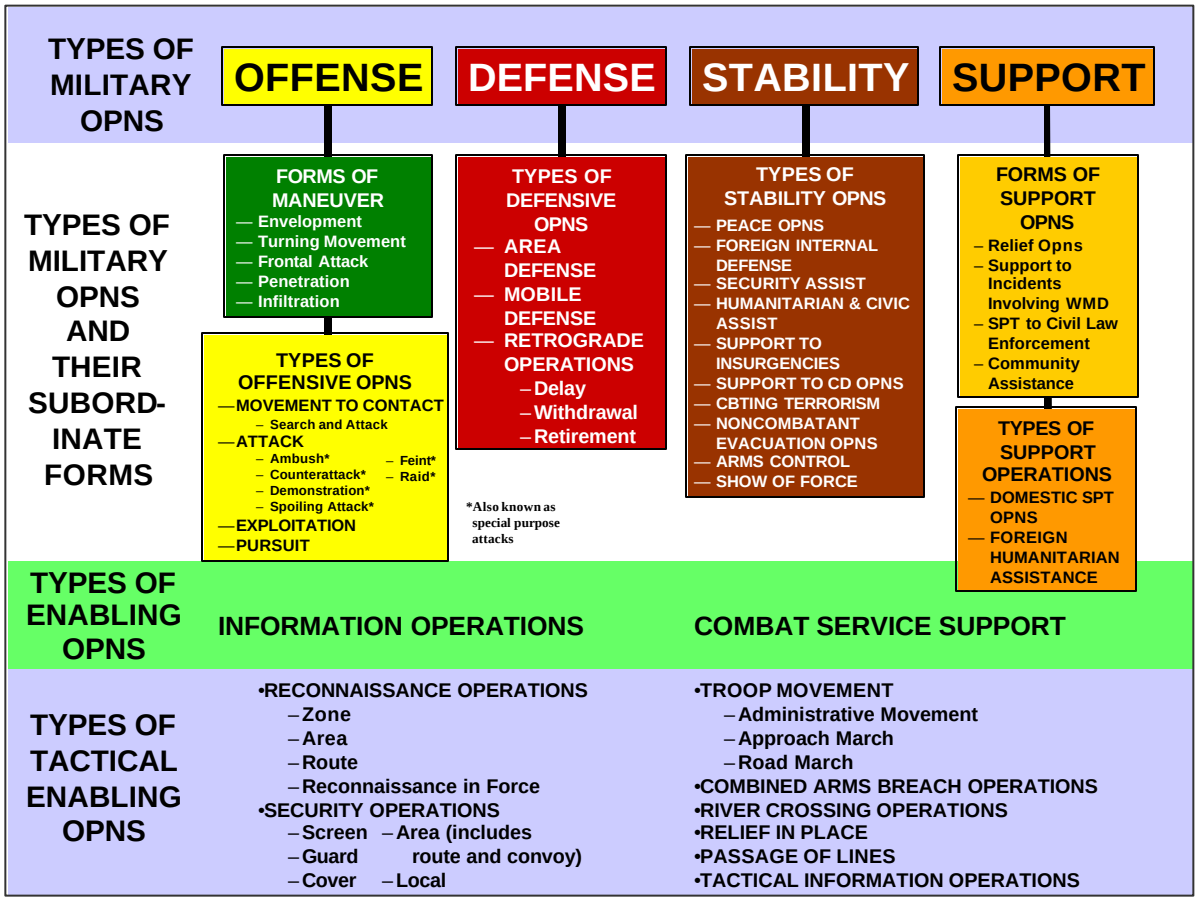


Figure 2-1. Doctrinal Hierarchy of Operations

2-2. The commander conducts tactical enabling operations to assist the planning, preparation, and execution of any of the four types of military operations (offense, defense, stability, and support). Tactical enabling operations are never decisive operations in the context of offensive and defensive operations; they are either shaping or sustaining operations. Part IV of this manual discusses tactical enabling operations that are not the subject of a separate field manual. The commander uses tactical enabling operations to help him conduct military actions with minimal risk.

2-3. This hierarchy does not describe discrete, mutually exclusive operations. All tactical missions can contain elements of several different types and subordinate forms. For example, an attacking commander may have one subordinate conducting an envelopment, with another subordinate conducting a frontal attack to fix the enemy. The enveloping force usually attacks once the direct-pressure force makes a movement to contact while repeatedly attacking to keep pressure on the fleeing enemy. The encircling force uses an envelopment to conduct a series of attacks to destroy or clear enemy forces in its path on the way to its blocking position. Once it occupies the blocking position, the unit may transition to a defense as it blocks the retreat of the fleeing enemy force.

THE OPERATIONAL FRAMEWORK

2-4. The *operational framework* consists of the arrangement of friendly forces and resources in time, space, and purpose with respect to each other and the enemy or situation. It consists of the area of operations, battlespace, and the battlefield organization (FM 3-0). The framework establishes an area of geographic and operational responsibility for commanders and provides a way for them to visualize how they will employ forces against the enemy. Army commanders design an operational framework to accomplish their mission by defining and arranging its three components. The commander uses the operational framework to focus combat power. *Combat power* is the total means of destructive and/or disruptive force which a military unit/formation can apply against the opponent at a given time (JP 1-02).

2-5. As part of the military decision making process, the commander visualizes his battlespace and determines how to arrange his forces. The *battlefield organization* is the allocation of forces in the area of operations by purpose. It consists of three all-encompassing categories of operations: decisive, shaping, and sustaining (FM 3-0). Purpose unifies all elements of the battlefield organization by providing the common focus for all actions. The commander organizes his forces according to purpose by determining whether each unit's operation will be decisive, shaping, or sustaining. Those decisions form the basis of his concept of operations. He describes the area of operations (AO) in terms of deep, close, and rear areas when the factors of METT-TC require the use of a spatial reference. FM 3-0 explains the operational framework and battlefield organization.

PRINCIPLES OF WAR

2-6. The nine principles of war defined in FM 3-0 provide general guidance for conducting war and military operations other than war at the strategic, operational, and tactical levels. They are fundamental truths governing combat operations. The principles are the enduring bedrock of Army doctrine. First published in 1923 as general principles in *Field Service Regulations United States Army*, they have stood the tests of analysis, experimentation, and practice. They are not a checklist and their degree of application varies with the situation. Blind adherence to these principles does not guarantee success, but each deviation may increase the risk of failure. The principles of war lend rigor and focus to the purely creative aspects of tactics and provide a crucial link between pure theory and actual application.

TENETS OF ARMY OPERATIONS

2-7. The tenets of Army operations—initiative, agility, depth, synchronization, and versatility—build on the principles of war. They further describe the characteristics of successful operations. While they do not guarantee success, their absence risks failure. FM 3-0 defines the tenets.

THE FACTORS OF METT-TC

2-8. The six factors of METT-TC—mission, enemy, terrain and weather, troops and support available, time available, and civil considerations—describe the unique situation in which a tactician executes the science and art of tactics. An analysis of the factors of METT-TC is critical during the military decision making process. The METT-TC analytical framework is useful in assessing operations planning, preparing, and executing. The tactician considers these six factors for any type of operation. Their impact on an operation will differ, but each must be considered as factors during the commander's visualization process. That consideration involves both the science and art of tactics. For example, terrain and weather effects on movement rates and fuel consumption are quantifiable and, therefore, part of the science of war. Terrain and weather effects on soldier morale are not totally quantifiable and are part of the art of war. FM 6-0 provides a detailed discussion of the factors of METT-TC.

ELEMENTS OF OPERATIONAL DESIGN

2-9. A major operation begins with a design—an idea that guides the conduct (plan, prepare, execute, and assess) of the operation. The operational design provides a conceptual linkage of ends, ways, and means. The elements of operational design are tools to aid the commander in visualizing major operations and shaping his intent. They help the commander clarify and refine his vision by providing a framework for him to describe the operation in terms of task and purpose. FM 3-0 defines each of these elements. Their utility diminishes with each succeeding tactical echelon. What is envisioned as a decisive point by the land component commander becomes a clearly delineated objective for a battalion task force.

Principles of War

- Objective
- Offensive
- Mass
- Economy of force
- Maneuver
- Unity of command
- Security
- Surprise
- Simplicity

Tenets of Army Operations

- Initiative
- Agility
- Depth
- Synchronization
- Versatility

Factors of METT-TC

- Mission
- Enemy
- Terrain and weather
- Troops and support available
- Time available
- Civil considerations

Elements of Operational Design

- End state and military conditions
- Center of gravity
- Decisive points and objectives
- Lines of operation
- Culminating point
- Operational reach, approach, and pauses
- Simultaneous and sequential operations
- Linear and nonlinear operations
- Tempo

BATTLEFIELD OPERATING SYSTEMS

2-10. There are seven battlefield operating systems (BOS). The seven BOS definitions from FM 7-15 are—

Battlefield Operating Systems

- Intelligence
- Maneuver
- Fire support
- Air defense
- Mobility/countermobility/ survivability
- Combat service support
- Command and control

- The *intelligence system* is the activity to generate knowledge of and products portraying the enemy and the environmental features required by a command planning, preparing, and executing operations.
- The *maneuver system* is the movement of forces to achieve a position of advantage with respect to enemy forces. This system includes the employment of forces on the battlefield in combination with direct fire or fire potential. This system also includes the conduct of tactical tasks associated with force projection.
- The *fire support system* encompasses the collective and coordinated use of target-acquisition data, indirect-fire weapons, fixed-wing aircraft, offensive information operations, and other lethal and nonlethal means against targets located throughout an AO.
- The *air defense system* is the employment of all active measures designed to nullify or reduce the effectiveness of attack by hostile aircraft and missiles after they are airborne.
- The *mobility, countermobility, and survivability system*.
  - *Mobility operations* preserve the freedom of maneuver of friendly forces.
  - *Countermobility operations* deny mobility to enemy forces.
  - *Survivability operations* protect friendly forces from the effects of enemy weapon systems.
- The *combat service support system* is the support and services provided to sustain forces during war and military operations other than war.
- The *command and control system* includes all collective tasks associated with supporting the exercise of authority and direction by a properly designated commander over assigned and available forces in the accomplishment of the mission.

The BOS provide the Army a common taxonomy of critical tactical activities. They provide the commander and his staff a means of assessing the planning, preparation, and execution of an operation in discrete subsets.

BASIC TACTICAL CONCEPTS

2-11. The following paragraphs contain basic tactical concepts common to both offensive and defensive operations. They are listed in alphabetical order, not in order of importance. These concepts, along with the principles of war, tenets of Army operations, factors of METT-TC, estimates, input from other commanders, and the commander's experience and judgment allow him to visualize the conduct of operations as he accomplishes his assigned mission.

COMBINED ARMS

2-12. *Combined arms* is the synchronized or simultaneous application of several arms—such as infantry, armor, artillery, engineers, air defense, and aviation—to achieve an effect on the enemy that is greater than if each arm was used against the enemy separately or in sequence (FM 3-0). Weapons and units are more effective when they operate in concert. No single action, weapon, branch, or arm of service generates sufficient power to achieve the effects required to dominate an opponent.

2-13. Combined arms is more than the combat arms working together. Each branch of the Army provides unique capabilities that complement the other branches. A combined arms team consists of two or more arms supporting one another. The commander takes his available combat, combat support (CS), and combat service support (CSS) elements and forms them into a combined arms team focused on mission accomplishment. The proper combination of actions and systems by the combined arms team is the essence of combined arms. The use of combined arms provides complementary and reinforcing effects and may have asymmetrical effects on an enemy force. (See FM 3-0 for more information on symmetrical and asymmetrical effects.)

2-14. Armor, attack helicopter, and infantry units are normally the nucleus of the combined arms team. However, emerging capabilities allow the commander to use any combat arms unit, such as artillery and aviation, to form that nucleus. The commander uses his combat arms forces in different combinations to provide flexibility in conducting different types of operations in varied terrain. For example, a commander may have his infantry lead in mountains and cities when moving dismounted, while his armor leads in open terrain. Attack helicopters can deliver large quantities of precision munitions throughout the AO. A commander can conduct decisive operations using field artillery Multiple Launch Rocket Systems (MLRS) and cannons augmented by the effects of fixed-wing aviation, given the correct conditions. Air defense artillery destroys enemy aerial assets to assist the free movement of the friendly force. Engineers enhance the friendly force's mobility, degrade the enemy's mobility, and assist in providing for survivability of the friendly force. Combat support and CSS members of the combined arms team support the combined arms nucleus by combining capabilities in an appropriate manner to support and sustain the combined arms force.

DECISIVE ENGAGEMENT

2-15. A *decisive engagement* is an engagement in which a unit is considered fully committed and cannot maneuver or extricate itself. In the absence of outside assistance, the action must be fought to a conclusion and either won or lost with the forces at hand (JP 1-02). The unit's mission is what usually results in the acceptance of decisive engagement rather than the unit's physical ability to extricate itself. For example, a unit might become decisively engaged to hold key terrain, defeat a specific enemy force, or secure a specific objective. Less common is a defender's decisive engagement as a result of being placed in a position of disadvantage by an attacker.

DEFEAT IN DETAIL

2-16. ***Defeat in detail* is achieved by concentrating overwhelming combat power against separate parts of a force rather than defeating the entire force at once.** A smaller force can use this technique to achieve success against a larger enemy. Defeat in detail can occur sequentially (defeat of separate elements one at a time in succession). For example, a commander can mass overwhelming combat power effects against an enemy element outside the supporting distance of the rest of the enemy force. This allows the commander to destroy the targeted enemy element before it can be effectively reinforced.

FLANKS

2-17. ***Flanks* are the right or left limits of a unit.** For a stationary unit, they are designated in terms of an enemy's actual or expected location. (See Figure 2-2.) For a moving unit, they are defined by the direction of movement. (See Figure 2-3.) The commanders tries to deny the enemy opportunities to engage his flanks because a force cannot concentrate as much direct fire on the flanks as it can to the front. Commanders seek to engage enemy flanks for the same reason.

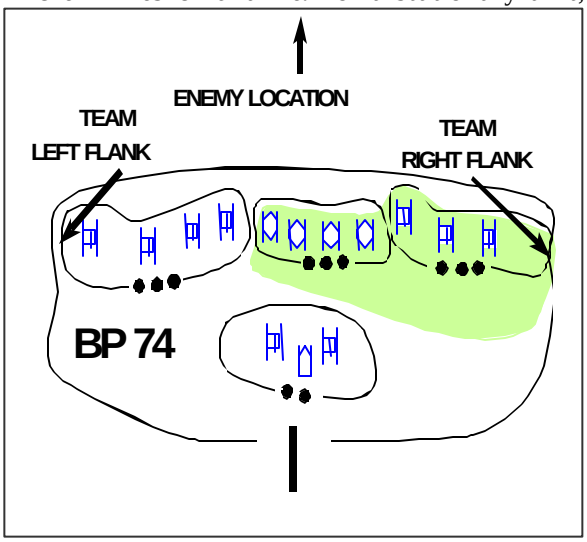


Figure 2-2. Flanks of a Stationary Unit

2-18. **An *assailable flank* is exposed to attack or envelopment.** It usually results from the terrain, the weakness of forces, technical capability of the opponent (vertical envelopment), or a gap between adjacent units. If one flank rests on highly restrictive terrain and the other flank is on open terrain, the latter is immediately recognized as the assailable flank for a heavy ground force. The flank on the restrictive terrain may be assailable for a light force. Sufficient room must exist for the attacking force to maneuver for the flank to be assailable. A unit may not have an assailable flank if both flanks link into other forces. When a

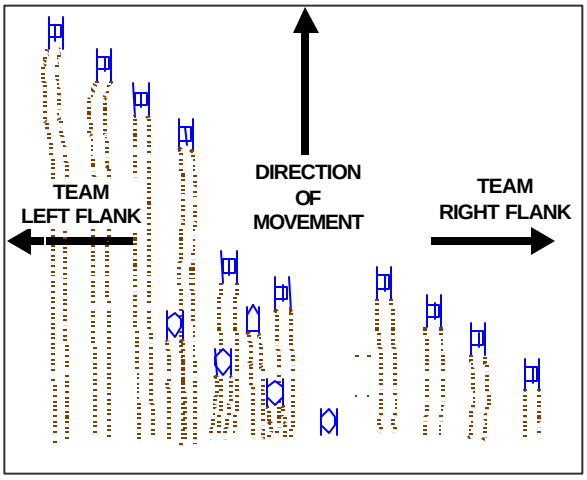


Figure 2-3. Flanks of an Armor-Heavy Team Moving in an Echelon Right Formation

commander has an assailable flank, he may attempt to refuse it by using various techniques, such as supplementary positions.

2-19. **A *flanking position* is a geographical location on the flank of a force from which effective fires can be placed on that flank.** An attacking commander maneuvers to occupy flanking positions against a defending force to place destructive fires directly against enemy vulnerabilities. A defending commander maneuvers to occupy flanking positions on the flanks of a hostile route of advance for the same reason. A flanking position that an advancing enemy can readily avoid has little value to the defender unless the enemy does not realize it is occupied.

MANEUVER

2-20. *Maneuver* is the employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission (JP 1-02). Maneuver creates and exposes enemy vulnerabilities to the massed effects of friendly combat power. A commander employs his elements of combat power in symmetrical and asymmetrical ways so as to attain positional advantage over an enemy and be capable of applying those massed effects.

MUTUAL SUPPORT

2-21. *Mutual support* is that support which units render to each other against an enemy because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities (JP 1-02). Mutual support exists between two or more positions when they support one another by direct or indirect fire, thus preventing the enemy from attacking one position without being fired on from one or more adjacent positions. That same relationship applies to units moving with relation to each other, except they can maneuver to obtain positional advantage to achieve that support. It is normally associated with fire and movement (maneuver), although it can also relate to the provision of CS and CSS.

2-22. In the defense, the commander selects tactical positions to achieve the maximum degree of mutual support. Mutual support increases the strength of defensive positions, prevents the enemy from attempting to defeat the attacking friendly forces in detail, and helps prevent infiltration. In the offense, the commander maneuvers his forces to ensure a similar degree of support between attacking elements.

OPERATION

2-23. An *operation* is a military action or the carrying out of a strategic, tactical, service, training, or administrative military mission (JP 1-02). It includes the process of planning, preparing, executing, and assessing those offensive, defensive, stability, and support operations needed to gain the objectives of any engagement, battle, major action, or campaign. It also includes activities that enable the performance of full spectrum operations, such as security, reconnaissance, and troop movement.

PIECEMEAL COMMITMENT

2-24. ***Piecemeal commitment*** **is the immediate employment of units in combat as they become available instead of waiting for larger aggregations of units to ensure mass, or the unsynchronized employment of available forces so that their combat power is not employed effectively.** Piecemeal commitment subjects the smaller committed forces to defeat in detail and prevents the massing and synchronizing of combat power with following combat and CS elements. However, piecemeal commitment may be advantageous to maintain momentum and to retain or exploit the initiative. A commander may require piecemeal commitment of a unit to reinforce a faltering operation, especially if the commitment of small units provide all of the combat power needed to avert disaster. The "pile-on" technique associated with search and attack operations employs the piecemeal commitment of troops. (See Chapter 5 for a discussion of search and attack operations.)

RECONSTITUITON

2-25. *Reconstitution* is those actions that commanders plan and implement to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources. Reconstitution operations include regeneration and reorganization (FM 4-100.9). Reconstitution is a total process. It is not solely a CSS operation, though CSS plays an integral role. The commander conducts reconstitution when one of his subordinate units becomes combat ineffective or when he can raise its combat effectiveness closer to the desired level by shifting available resources. Besides normal support actions, reconstitution may include—

- ?? Removing the unit from combat.
- ?? Assessing it with external assets.
- ?? Reestablishing the chain of command.
- ?? Training the unit for future operations.
- ?? Reestablishing unit cohesion.

2-26. Reconstitution transcends normal day-to-day force sustainment actions. However, it uses existing systems and units to do so. No resources exist solely to perform reconstitution. (See FM 4-100.9.)

RULES OF ENGAGEMENT

2-27. *Rules of engagement* (ROE) are directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered (JP 1-02). Operational requirements, policy, and law define the commander's ROE. Rules of engagement impact on how a commander conducts his operations in all four types of military operations by imposing political, practical, operational, and legal limitations on his actions. They may extend to criteria for initiating engagements with certain weapon systems, such as employing unobserved indirect fires within the echelon rear area, or reacting to an attack. They always recognize the right of self-defense and the commander's right and obligation to protect assigned personnel. CJCSI 3121.01A establishes the Joint Chiefs of Staff's standing ROE. Operational level

commanders modify those standing ROE as necessary in response to the factors of METT-TC.

SUPPORTING DISTANCE

2-28. *Supporting distance* is the distance between two units that can be traveled in time for one to come to the aid of the other. For small units, it is the distance between two units that can be covered effectively by their fires (FM 3-0). Supporting distance is a factor of combat power, dispositions, communications capability, and tactical mobility of friendly and enemy forces.

SUPPORTING RANGE

2-29. *Supporting range* is the distance one unit may be geographically separated from a second unit, yet remain within the maximum range of the second unit's indirect fire weapons systems. (FM 3-0). Major factors that affect supporting range are terrain relief, the range of the supporting unit's weapon systems, and their locations in relation to the supported unit's position.

TACTICAL MOBILITY

2-30. ***Tactical mobility* is the ability to move rapidly from one part of the battlefield to another, relative to the enemy.** Tactical mobility is a function of cross-country mobility, firepower, and protection. The terrain, soil conditions, and weather affect cross-country mobility. Heavy ground maneuver units have good tactical mobility—except in restrictive terrain—combined with firepower and protection. They can move on the battlefield against most enemy forces unless faced with an enemy who can defeat their protection and cannot be suppressed by friendly fires. Light ground maneuver units have a tactical mobility advantage against enemy heavy forces in restrictive terrain, but limited firepower and protection. Army aviation maneuver units have good tactical mobility in most types of terrain, good firepower, but limited protection. Extreme weather conditions can restrict the tactical mobility of Army aviation units.

BASIC TACTICAL GRAPHIC CONTROL MEASURES

2-31. This section establishes basic tactical graphic control measures common to offensive and defensive operations. The appropriate chapters of this manual discuss those graphic control measures that apply to only one type of military operation. For example, Chapter 3 discusses the objective as a basic offensive control measure since an objective is a graphic control measure that applies only to offensive operations. These graphics apply to both automated and hand-drawn graphic displays or overlays. This section portrays control measures for use on situation maps, overlays, and annotated aerial photographs. They are also the standard for all simulations, to include those used in live, virtual, and constructive environments.

2-32. Units conducting tactical operations must have clearly defined tasks and responsibilities. The commander uses control measures to establish specific responsibilities that prevent units from impeding one another and impose necessary restrictions. Control measures can be permissive (which allows something to happen) or restrictive (which limits how something is done).

Control measures may be graphical, such as boundaries, or procedural, such as target engagement priorities. A commander should establish only the minimum control measures necessary to provide essential coordination and deconfliction between units. Control measures must not unduly restrict subordinates in accomplishing their missions. The commander removes restrictive control measures as soon as possible. FM 1-02 discusses the rules for drawing control measures on overlays and maps.

Basic Tactical Graphic Control Measures

- Air corridor and air control points
- Area of operations and boundaries
- Assembly areas
- Checkpoint
- Contact point
- Critical friendly zones
- Direct fire control measures
- Deep, close, and rear areas
- Engagement area
- Fire support coordination measures
- Fire support targets
- Forward line of own troops
- Line of contact
- Named area of interest
- Obstacle control measures
- Phase lines
- Position areas for artillery
- Routes
- Targeted area of interest

2-33. Well-conceived control measures facilitate the conduct of current and future operations. The commander adjusts his control measures as necessary to maintain synchronization and ensure mission accomplishment as the tactical situation evolves. He balances the risk of introducing additional friction into the operation with the benefits gained by changing them if all of his subordinate elements do not receive the new control measures when contemplating changes to previously established control measures.

2-34. Control measures apply to all forces: combat, CS, and CSS. The commander ensures all higher-echelon control measures, such as phase lines (PLs) and checkpoints, are incorporated into his graphic control measures. When he reports to higher headquarters, he references only the control measures established by that headquarters.

AIR CORRIDOR AND AIR CONTROL POINTS

2-35. An *air corridor* is a restricted air route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces (JP 1-02). It is used to deconflict artillery firing positions with aviation traffic. Low-level transit routes, minimum-risk routes, standard use army aircraft flight routes, and UAV routes are types of air corridors. An air corridor always includes air control points. An *air control point* (ACP) is an easily identifiable point on the terrain or an electronic navigational aid used to provide necessary control during air movement. ACPs are generally designated at each point where the flight route or air corridor makes a definite change in direction and at any other point deemed necessary for timing or control of the operation (FM 3-52). (Figure 2-4 on page 2-12 depicts a generic air corridor and ACPs. See FM 3-52 for more information on aerial control measures.)

AREA OF OPERATIONS AND BOUNDARIES

2-36. An AO is the basic control measure for all types of operations. An *area of operations* is an operational area defined by the joint force commander for land and naval forces. Areas of operations do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces (JP 1-02). The joint force land component commander (JFLCC) or the Army service component command (ASCC) commander will in turn assign their subordinates their own AOs. Those subordinates will further assign their subordinates AOs down to the battalion or company level based on the factors of METT-TC. A unit assigned an AO, the owning unit, may not change control measures imposed by a higher headquarters within their AO. However, it may establish additional control measures to coordinate and synchronize its operations.

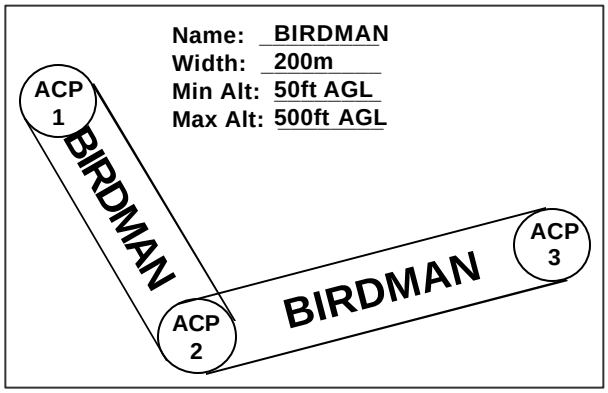


Figure 2-4. Generic Air Corridor

2-37. Assigning an AO to a subordinate headquarters maximizes decentralized execution by empowering subordinate commanders to use their own initiative to accomplish their assigned missions. This encourages the use of mission command. (See FM 6-0 for a discussion of mission command.) At the same time it adds the responsibilities listed in Paragraph 2-40 below to the lower headquarters. Conversely, failure to designate subordinate AOs maximizes centralized execution and limits the subordinates' tactical options. The latter choice should be made only when mandated by the factors of METT-TC. For example, a brigade commander responsible for blocking an enemy advance along a single avenue of approach may assign his subordinate battalions battle positions to support a brigade engagement area (EA) instead of subdividing his AO and the avenue of approach into battalion AOs.

An *avenue of approach* is the air or ground route leading to an objective (or key terrain in its path) that an attacking force can

2-38. A higher headquarters designates an AO using boundaries. It normally assigns an AO to a maneuver unit, but it may also assign one to CS or CSS units. Having an AO assigned both restricts and facilitates the movement of units and use of fires. It restricts units not assigned responsibility for the AO from moving through the AO. It also restricts outside units from firing into or allowing the effects of its fires to affect the AO. Both of these restrictions can be relaxed through coordination with the owning unit. It facilitates the movement and fires of the unit assigned responsibility for, or owning, the AO. The assigned AO must encompass enough terrain for the commander to accomplish his mission and protect his forces.

2-39. Ideally, the AO is smaller than the commander's area of influence. An *area of influence* is a geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control (JP 1-02). If the commander's area of influence is smaller than his AO, he must consider his options for extending the size of his area of influence. His options include the following techniques:

- ?? Changing the geographical dispositions of his current systems to increase the size of his area of influence and ensure coverage of key areas, installations, and systems.
- ?? Requesting additional assets.
- ?? Requesting boundary adjustments to reduce the size of his AO.
- ?? Accepting the increased risk associated with being unable to provide security throughout the AO.
- ?? Moving his area of influence by phases to sequentially encompass the entire AO.

2-40. All units assigned an AO have the following responsibilities:

- ?? Terrain management.
- ?? Movement control.
- ?? Fires.
- ?? Security.

Selected echelons have an additional responsibility to provide airspace command and control.

Terrain Management

2-41. The commander assigned an AO is responsible for terrain management within its boundaries. A higher headquarters may dctate that another unit position itself within a subordinate unit's AO, but the commander assigned the AO retains final approval authority for the exact placement. This ensures the unit commander controlling the AO knows what units are in his AO and where they are located so that he can deconflict operations, control movement, and prevent fratricide. Only the owning commander assigns subordinate unit boundaries within the AO.

Movement Control

2-42. Units may not move across boundaries into another unit's AO without receiving clearance from the unit owning the AO. Once assigned an AO, the owning unit controls movement throughout the AO. The designation, maintenance, route security, and control of movement along routes within an AO are the responsibility of the owning unit unless the higher echelon's coordinating instructions direct otherwise. The commander may designate movement routes as open, supervised, dispatch, reserved, or prohibited. Each route's designation varies based on the factors of METT-TC. FM 4-01.30 discusses movement planning and control measures.

Fires

2-43. Within its AO, the owning unit may employ any direct or indirect fire system without receiving further clearance from superior headquarters. There

are three exceptions: The first and most common is that a unit may not use munitions within its own AO without receiving appropriate clearance if the effects of those munitions extend beyond its AO. For example, if a unit wants to use smoke, its effects cannot cross boundaries into another AO unless cleared with the adjacent owning unit. Second, higher headquarters may explicitly restrict the use of certain munitions within an AO or parts of an AO, such as long-duration scatterable mines. Third, higher headquarters may impose a restrictive fire support coordinating measure (FSCM) within an AO to protect some asset or facility, such as a no-fire area around a camp housing dislocated civilians. These FSCM tend to be linear in nature in a contiguous AO while they are more likely areas in a noncontiguous AO.

2-44. The commander may not employ indirect fires across boundaries without receiving clearance from the unit into whose AO the fires will impact. He may employ direct fires across boundaries without clearance at specific point targets that are clearly and positively identified as enemy.

Security

2-45. The security of all units operating within the AO is the responsibility of the owning commander. This fact does not require that commander to conduct area security operations throughout his AO. (See Chapter 12 for a discussion of area security responsibilities.) He must prevent surprise and provide the amount of time necessary for all units located within the AO to effectively respond to enemy actions by employing security forces around those units. If the commander cannot or chooses not to provide security throughout his AO, he must clearly inform all concerned individuals of when, where, and under what conditions he is not going to exercise this function. The commander generally depicts these locations using permissive FSCM. Each unit commander remains responsible for his unit's local security.

Airspace Command and Control

2-46. *Army airspace command and control* (A2C2) are those actions that ensure the synchronized use of airspace and enhanced command and control of forces using airspace (FM 3-52). The ground maneuver commander manages the airspace below the coordinating altitude, using procedural control measures and positive control measures implemented by his air traffic service organization. Corps and divisions are the echelons that routinely have A2C2 responsibilities, although a commander may provide the resources to accomplish this function to a brigade operating independently.

2-47. Communications, standardized procedures, and liaison normally provide the commander with his required connectivity with the theater airspace control authority. The commander ensures reliable communications through his area communications network. He supervises airspace activities through standardized procedures to prevent real-time conflicts among the various airspace users while achieving the necessary flexibility to ensure the greatest combat effectiveness. The A2C2 section of the battlefield coordination detachment, co-located with the joint air operations center, provides the commander that liaison capability with the airspace control authority (ACA). (See FM 3-52 and JP 3-52 for additional information regarding airspace control doctrine.)

2-48. The vertical dimension, or airspace, of the AO is inherently permissive because all branches and services require the use of airspace. There are procedural and positive airspace control measures (ACM) available to synchronize military operations in the airspace above the AO. Among the procedural ACM is the coordinating altitude, which separates fixed- and rotary-wing aircraft by determining an altitude below which fixed-wing aircraft will normally not fly and above which rotary-wing aircraft will normally not fly. It allows the ground commander to use the airspace above his AO for his organic aviation assets to complement ground maneuver forces, but it is not a boundary for which he has responsibility. The ACA, normally the joint force air component commander, must establish the coordinating altitude, promulgate it through the airspace control plan, address it in the airspace control order, and include a buffer zone for small altitude deviations. Coordinating altitudes are permissive ACM.

Boundaries

2-49. A *boundary* is a line that delineates surface areas for the purpose of facilitating coordination and deconfliction of operations between adjacent units, formations, or areas (JP 0-2). The commander uses graphic control measures to define the limits of an AO and, as such, establish ground forces' responsibilities. He uses ACM to control the vertical dimension. The commander bases his subordinates' boundaries on clearly defined terrain features. This requirement is less important if all units in the AO have precision navigation capabilities. Boundaries should not split roads, rivers, or railways. Responsibility for an avenue of approach and key terrain should belong to only one unit. The commander adjusts his boundaries as necessary in response to the evolving tactical situation. Any areas not delegated to a subordinate remain the responsibility of the commander.

Contiguous and Noncontiguous AOs

2-50. **A commander has a *contiguous AO* when all of his subordinate forces' areas of operations share one or more common boundaries. A commander has a *noncontiguous AO* when one or more of his subordinate forces' areas of operations do not share a common boundary.** The intervening area between noncontiguous AOs remains the responsibility of the higher headquarters. The commander can choose to organize his AO so that his subordinates have contiguous or noncontiguous areas of operations.

2-51. The forward boundary of an echelon is primarily designated to divide responsibilities between it and its next higher echelon. Decisive or shaping operations directed against enemy forces beyond an echelon's forward boundary are the responsibility of the next higher echelon. The higher echelon headquarters normally assigns the lower echelon a forward boundary based on the higher echelon's scheme of maneuver. The ability to acquire and attack targets in the area between the forward boundary of its subordinates and the echelon's forward boundary determines the exact position of that forward boundary. For example, if a division assigns a forward boundary to a brigade, then the division conducts operations beyond the brigade's forward boundary. That area between the brigade's forward boundary and the division's forward boundary is the division's deep area. The rear boundary defines the rearward limits of the unit's area. It usually also defines the start of the next echelon's

rear area. Lateral boundaries extend from the rear boundary to the unit's forward boundary. (See Figure 2-5.)

2-52. The commander bases his decision to establish contiguous AOs on his analysis of the factors of METT-TC. Units with contiguous AOs are normally within supporting distance of one another and may be within supporting range. Other reasons why a commander establishes contiguous AOs include—

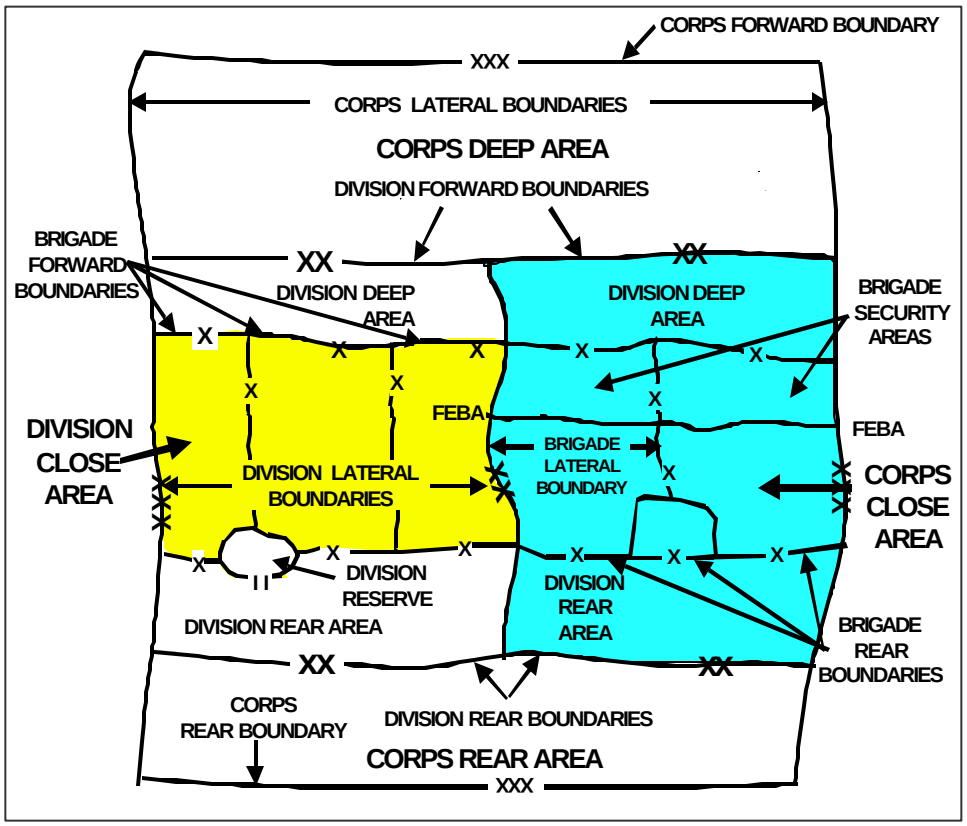


Figure 2-5. Corps with Contiguous Areas of Operations

?? Limited size of the AO in relation to the number of friendly forces.

?? Decisive points in close physical proximity to each other.

?? Political boundaries or enemy force concentrations require establishing contiguous AOs.

?? Reduced risk of being defeated in detail because of an incomplete operational picture or when the friendly force is significantly outnumbered.

?? Greater concentration of combat power along a single avenue of approach or movement corridor.

2-53. A noncontiguous AO does not have distinctive forward, rear, and lateral boundaries. It is established by a boundary that encloses the entire area. Subordinate boundaries will be continuous, 360-degree arcs that closely approximate the subordinate unit's area of influence. For example, the commander would normally place a noncontiguous brigade boundary at the limit of observed fires for its security forces. Because noncontiguous boundaries must provide all-

around security, they generally allow for less concentration of combat power along a single axis. A brigade, division, or corps commander who establishes noncontiguous AOs for his subordinates still designates an echelon rear area. Battle positions are not AOs since a unit is not restricted from operating outside its battle position. A commander who deploys his subordinates into battle positions is not conducting noncontiguous operations. Chapter 8 defines a battle position.

2-54. Operations directed against enemy forces and systems outside a noncontiguous AO are the responsibility of the organization that owns that location. For example, in Figure 2-6 the middle enemy division is the corps' responsibility since it is not within either of the corps' two divisions' AOs.

2-55. The commander bases his decision to establish noncontiguous AOs on his analysis of the factors of METT-TC. There is a risk associated with establishing noncontiguous AOs since units with noncontiguous AOs are normally out of supporting range from each other. Overcoming this risk places a premium on situational understanding and tactical mobility. Reasons why a commander

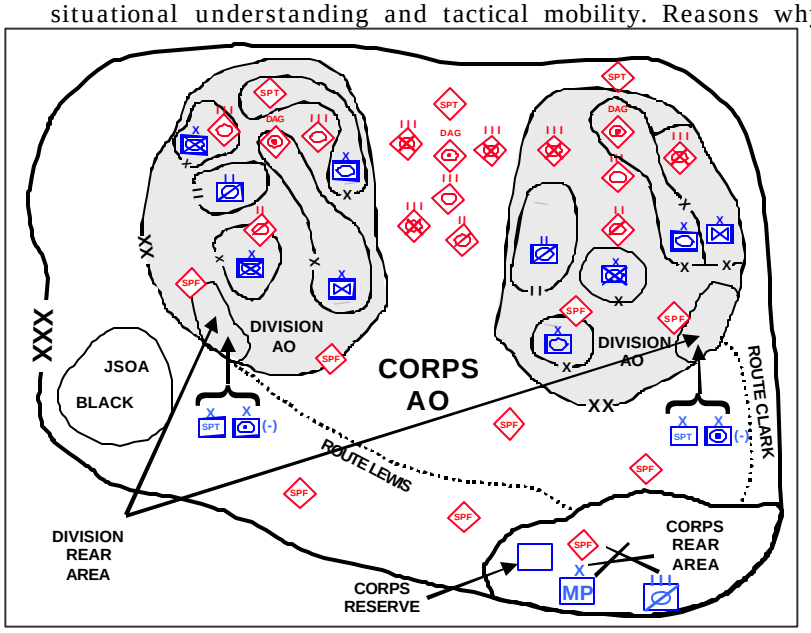


Figure 2-6. Corps with Noncontiguous Areas of Operations

establishes noncontiguous AOs include—

?? Encompassing key and decisive terrain within his area of influence when he has limited numbers of friendly forces for the size of the AO. ***Key terrain* is any locality, or area, the seizure or retention of which affords a marked advantage to either combatant. *Decisive terrain*, when present, is key terrain whose seizure and retention is mandatory for successful mission accomplishment.**

?? Comparative weakness of the enemy means that subordinates do not have to remain within supporting range or distance of one another and can take advantage of superior situational understanding and tactical mobility.

?? Enemy concentrated in dispersed areas requires a corresponding concentration of friendly forces.

?? Existence of large contaminated areas within his AO.

2-56. Using noncontiguous AOs place a premium on the use of innovative means to conduct sustaining operations, including aerial resupply. A commander whose subordinates have noncontiguous AOs has three basic choices for establishing intermittent ground lines of communications (LOCs) with his subordinates:

?? Assign a subordinate the mission of providing convoy security for each convoy. For the situation depicted in Figure 2-7, the corps could assign the corps military police brigade the mission of providing convoy security for critical ground convoys traveling between the corps rear area and each division's rear area.

?? Assign a subordinate the mission of providing route security for each sustainment route. For the situation depicted in Figure 2-7 the corps could assign the corps armored cavalry regiment an AO that extends four kilometers on either side of LOCs LEWIS and CLARK. The regiment would be assigned the mission of route security within that AO for the period required for sustainment convoys to travel to and from the two subordinate divisions.

?? Assume risk by having the corps support command run convoys with only their organic self-defense capabilities, while assigning another unit the mission of responding to enemy contacts beyond a convoy's self-defense capability.

ASSEMBLY AREAS

2-57. **An *assembly area* (AA) is an area a unit occupies to prepare for an operation.** Ideally, an assembly area provides—

?? Concealment from air and ground observation.

?? Cover from direct fire.

?? Space for dispersion; separate each AA by enough distance from other AAs to preclude mutual interference.

?? Adequate entrances, exits, and internal routes.

?? Good drainage and soil conditions that can sustain the movement of the unit's vehicles and individual soldiers.

?? Terrain masking of electromagnetic signatures.

?? Terrain allowing observation of ground and air avenues into the AA.

?? Sanctuary from enemy medium-range artillery fires because of its location outside the enemy's range.

2-58. The commander assigns each unit its own AA. In Figure 2-7, the example of multiple units occupying one AA is a graphical shortcut taken when the map scale would make depiction of multiple assembly areas unreadable. In reality, the commander would subdivide AA Thomas into two smaller AAs, one for each unit. A unit AA is normally within the AO of another unit. An AA area is usually treated as a noncontiguous AO. This means that a unit has the same responsibilities within its assigned AA as it has for any other AO.

2-59. The proper location of AAs contributes significantly to both security and flexibility. It should facilitate future operations so movement to subsequent positions can take place smoothly and quickly by concealed routes. Because of their smaller signature, light units can use AAs closer to the enemy than heavy units without excessive risk of enemy detection. The tactical mobility of heavy units allows them to occupy AAs at a greater distance from the line of departure (LD) than light units.

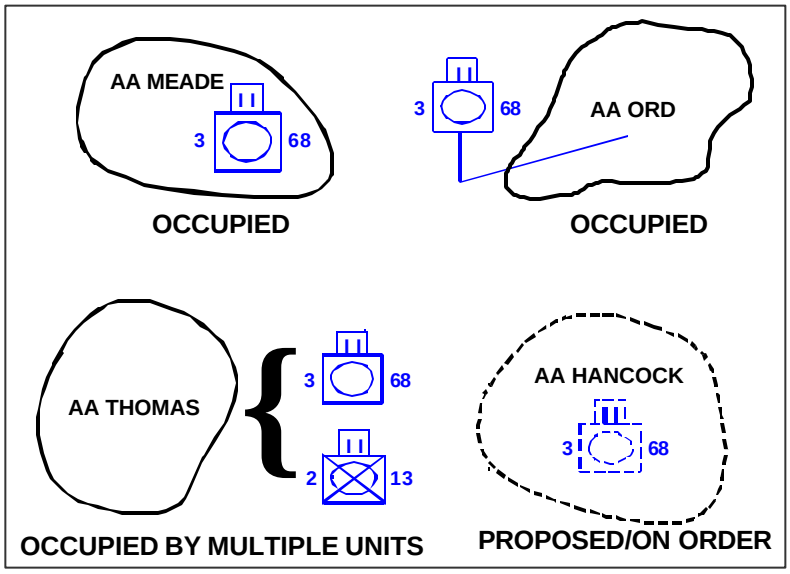


Figure 2-7. Assembly Areas

CHECKPOINT

2-60. **A *checkpoint* is a predetermined point on the ground used to control movement, tactical maneuver, and orientation.** Units can also use a checkpoint as a fire control measure in lieu of the preferred control measure, a target reference point. Checkpoints are useful for orientation. Units may use checkpoints to supplement or as substitutes for phase lines (PLs). They are also used in the conduct of CSS. Figure 2-8 depicts Checkpoint 13.

CONTACT POINT

2-61. **A *contact point* is an easily identifiable point on the terrain where two or more ground units are required to make physical contact.** A commander establishes a contact point where a PL crosses a lateral boundary or on other identifiable terrain as a technique to ensure coordination between two units. He provides a date-time group to indicate when to make that physical contact. Figure 2-9 depicts Contact Point 8.

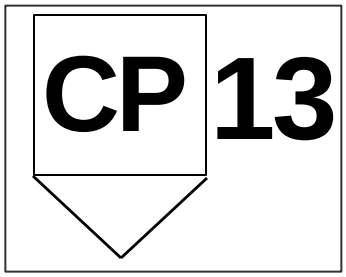


Figure 2-8. Checkpoint 13

2-62. The mutual higher commander of two moving units normally designates the location of contact points and times of contact. When one unit is stationary, its commander normally designates the location of the contact point and the meeting time, and transmits this information to the commander of the moving unit.

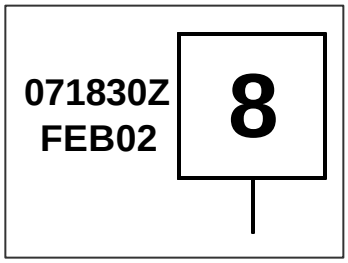


Figure 2-9. Contact Point 8

CRITICAL FRIENDLY ZONE

2-63. **A *critical friendly zone* (CFZ) is an area, usually a friendly unit or location, that the maneuver commander designates as critical to the protection of an asset whose loss would seriously jeopardize the mission.** The exact size and shape of the CFZ reflects the technical characteristics of the sensor coverage and varies in accordance with the terrain. There is no specific graphic for a CFZ. The designation of a CFZ requires the availability of a target acquisition sensor to cover that area and fire support weapon systems to conduct counterfire. The supporting field artillery unit's automated fire support system is tied to that sensor to place the location of a weapon firing into the CFZ ahead of all other targets in priority for counterfire. This results in an immediate call for fire unless the system operator manually overrides the automated request for fire. (For additional information on the employment of a CFZ, see FM 3-09.12.)

DIRECT FIRE CONTROL MEASURES

2-64. The small unit commander communicates to his subordinates the manner, method, and time to initiate, shift, and mass fires, and when to disengage by using direct fire control measures. The commander should control his unit's fires so he can direct the engagement of enemy systems to gain the greatest effect. The commander uses intelligence preparation of the battlefield (IPB) and reconnaissance to determine the most advantageous way to use direct fire control measures to mass the effects on the enemy and reduce fratricide from direct fire systems. He must understand the characteristics of weapon systems and available munitions (such as the danger to unprotected soldiers when tanks fire discarding sabot ammunition over their heads or near them). Direct fire control measures defined in this manual include engagement criteria, engagement priorities, sectors of fire, and target reference points. Platoon and company maneuver manuals address other direct fire control measures, such as frontal, cross, or depth fire patterns and simultaneous, alternating, or observed techniques of fire.

Engagement Area

2-65. **An *engagement area* (EA) is an area where the commander intends to contain and destroy an enemy force with the massed effects of all available weapons and supporting systems.** This includes organic direct fire systems and supporting systems, such as close air support. Figure 2-10 depicts several EAs used within the context of a battalion defense. The commander determines the size and shape of the EA by the relatively unobstructed intervisibility from the weapon systems in their firing positions and the maximum range of those weapons. The commander designates EAs to cover each enemy avenue of approach into his position. He also can use them to designate known or suspected enemy locations. Once the commander selects his EA, he arrays his forces in positions to concentrate overwhelming effects into these areas. He routinely subdivides his EA into smaller EAs for his subordinates using one or more target reference points or by prominent terrain features. The commander assigns sectors of fires to subordinates to prevent fratricide, but responsibility for an avenue of approach or key terrain is never split. These sectors normally do not affect friendly maneuver. Commanders of units up to battalion task force size normally use this control measure.

Engagement Criteria

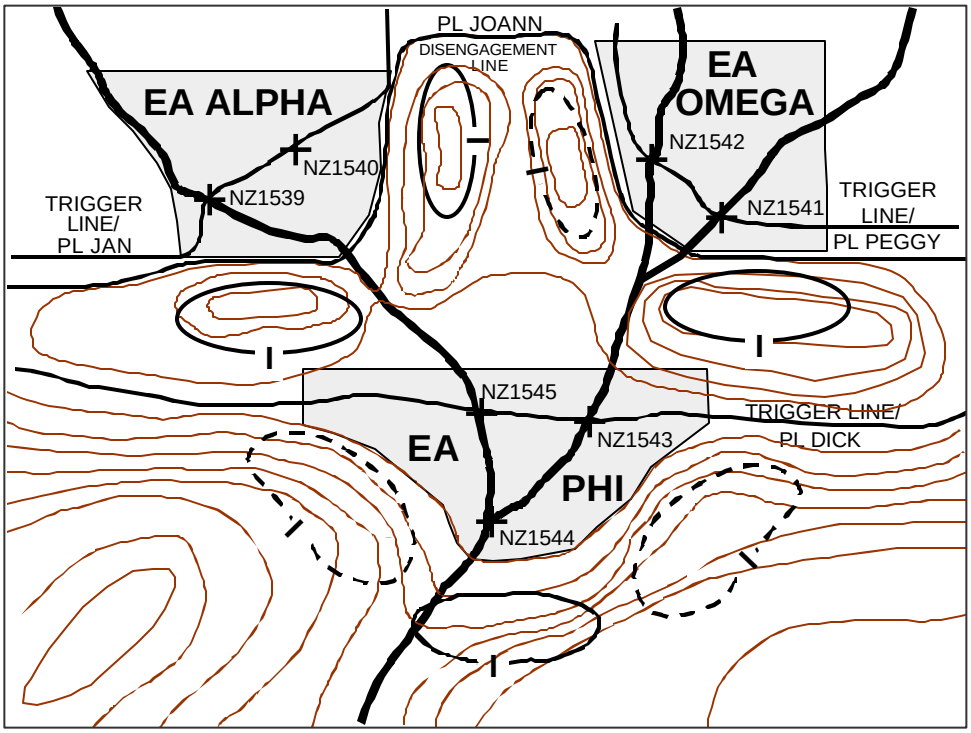


Figure 2-10. Engagement Areas

2-66. ***Engagement criteria* are protocols that specify those circumstances for initiating engagement with an enemy force.** They may be restrictive or permissive. For example, a company commander could tell his 1st Platoon to wait until three enemy tanks reach a target reference point within its EA before initiating fire. Another example is a battalion commander telling one of his company commanders not to engage an approaching enemy unit until

it commits itself to an avenue of approach. The commander establishes his engagement criteria in the direct fire plan. Commanders and leaders of small tactical units use engagement criteria in conjunction with engagement priorities and other direct fire control measures to mass fires and control fire distribution.

Engagement Priority

2-67. ***Engagement priority*** **specifies the order in which the unit engages enemy systems or functions.** The commander assigns engagement priorities based on the type or level of threat at different ranges to match organic weapon systems capabilities against enemy vulnerabilities. Engagement priorities are situationally dependent. The commander uses engagement priorities to distribute fires rapidly and effectively. Subordinate elements can have different engagement priorities. For example, the commander establishes his engagement priorities so that his M2 Bradley fighting vehicles engage enemy infantry fighting vehicles or armored personnel carriers while his M1 Abrams tanks engage enemy tanks. Normally, units engage the most dangerous targets first, followed by targets in depth.

Sector of Fire

2-68. **A *sector of fire* is that area assigned to a unit, a crew-served weapon, or an individual weapon within which it will engage targets as they appear in accordance with established engagement priorities.** (See Figure 2-11.) Battalions and smaller echelons primarily use this direct fire control measure. Each sector of fire can extend from a firing position to the maximum engagement range of the weapon, or it can be an enclosed area at a distance from the firing position. To increase the commander's ability to concentrate fires in a certain area, he should assign each unit or weapon system a primary sector of fire and a secondary sector of fire. The primary sector of fire is that area in which the assigned unit, individual, or crew-served weapon is initially responsible for engaging and defeating the enemy. Fire shifts to the secondary sector, on order, when there are no targets in the primary sector, or when the commander needs to cover the movement of another friendly element. This secondary sector of fire should correspond to another element's primary sector of fire to obtain mutual support. Subordinate commanders may impose additional fire control measures as required.

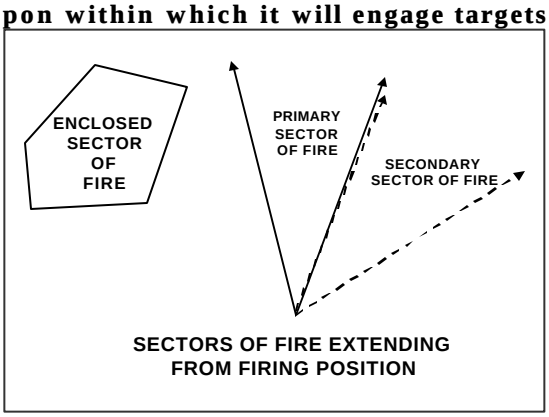


Figure 2-11. Sectors of Fire

Target Reference Point

2-69. **A *target reference point* (TRP) is an easily recognizable point on the ground, such as a building or a road junction, used in conjunction with engagement areas and sectors of fire to initiate, distribute, and**

control fires. A TRP may be a natural terrain feature, a manmade artifact, such as a building, or a marker emplaced by the unit. Maneuver leaders at battalion and below designate TRPs to define unit or individual sectors of fire and observation, usually within an EA. A TRP can also designate the center of an area where the commander plans to rapidly distribute or converge fires. A task force commander designates TRPs for his company teams. Company commanders designate TRPs for their platoons, sections, and, in some cases, individual weapons. Platoon leaders or subordinate leaders may designate additional TRPs for their elements as necessary to control direct and indirect fires. The echelon fire support officer can also designate TRPs as indirect fire targets by using the standard target symbol with letters and numbers. Figure 2-12 depicts the symbol for TRP 032.

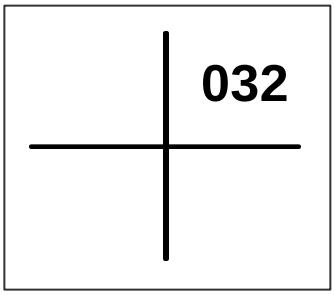


Figure 2-12.
Target Reference

Trigger Line

2-70. **A *trigger line* is a phase line used to initiate and mass fires into an engagement area or an objective at a predetermined range for all or like weapon systems.** It is located on identifiable terrain—like all phase lines—that crosses an EA, a direction of attack, or an axis of advance. The commander can designate one trigger line for all weapon systems or separate trigger lines for each weapon or type of weapon system. The commander specifies the engagement criteria for this specific situation. The criteria may be either time- or event-driven, such as a certain number or certain types of vehicles to cross the trigger line before initiating engagement. He may reserve to himself the authority to initiate engagement by firing his own weapon or giving the command to fire.

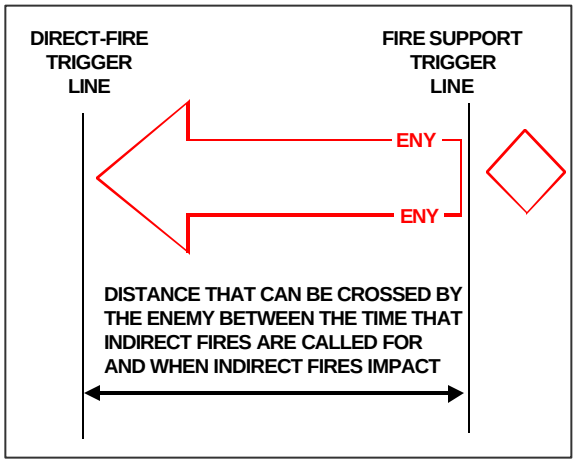


Figure 2-13. Trigger Lines

2-71. The commander designates a PL as the trigger line for his fire support systems. He bases the trigger line's location on the factors of METT-TC, including such variables as the time of flight for artillery shells, positioning of the guns, and the existence of quick-fire links. Its location varies from situation to situation. Its position reflects the distance that the enemy force is likely to traverse in the time it takes from when fires are requested to when artillery rounds impact. (See Figure 2-13.) This gives time for the fire support systems to respond to the initial call for fire. For example, in a desert environment—a battalion task force commander's fire support trigger line is approximately four

kilometers beyond the point where he wants to engage the enemy with indirect fires when he has M109A6 howitzers in direct support. It is approximately six kilometers when he has M109A3 howitzers in direct support. The shorter distance reflects the more rapid response capabilities of the M109A6 compared to the M109A3, all other factors being equal.

2-72. The commander can establish another trigger line for his most accurate long-range weapon system in the vicinity of the area where the fire support impacts to capitalize on the asymmetric attack. However, dust and debris resulting from the artillery fire may prevent his direct-fire systems from engaging the enemy. He establishes other trigger lines and TRPs for shorter-range systems. He may give guidance to extremely proficient crews to engage the enemy at longer than normal ranges or give them different engagement priorities than the rest of the force, such as giving priority to engaging air defense or engineer-breaching systems. This could result in losing the effect that the sudden application of massed fires has on an enemy.

2-73. When the enemy reaches these closer trigger lines, the commander establishes a decision point to help him determine if he wants his longer-range systems to continue to fire in depth or to concentrate his fires on a single point. Many factors impact his decision, most of which concern the enemy and how he maneuvers and the effects of the defending force's fires.

DEEP, CLOSE, AND REAR AREAS

2-74. There are times when the factors of METT-TC favor a spatial organization of the entire AO. Korea is an example of large numbers of enemy units concentrated in numerous echelons on a contiguous front across the peninsula. The terrain and the capabilities and doctrine of allied units require the use of a spatial organization. The commander conducts simultaneous decisive, shaping, and sustaining operations within a context of deep, close, and rear areas when this occurs. (See Figure 2-14.)

Deep Area

2-75. When designated, the *deep area* is an area forward of the close area that commanders use to shape enemy forces before they are encountered or engaged in the close area (FM 3-0). It extends from the subordinate's forward boundary to the forward boundary of the controlling echelon. Thus, the deep area relates to the close area not only in terms of geography but also in terms of purpose and time. The extent of the deep area depends on how far out the force can acquire information and strike targets. Commanders may place forces or employ effects in the deep area to conduct shaping operations. Some of these operations may involve close combat. However, most ground maneuver forces stay in the close area.

2-76. New weapon systems and advanced information technology continue to increase the capability of Army forces to engage enemy forces in depth. In the past, deep attacks aimed to slow and disrupt the advance of enemy forces. Today, Army forces may engage enemy formations with precision fires at substantial distances from the close area. This capability allows the commander to employ greater depth and simultaneity of action than ever before when conducting operations.

Close Area

2-77. When designated, the *close area* is where forces are in immediate contact with the enemy and the fighting between the committed forces and readily available tactical reserves of both combatants is occurring, or where

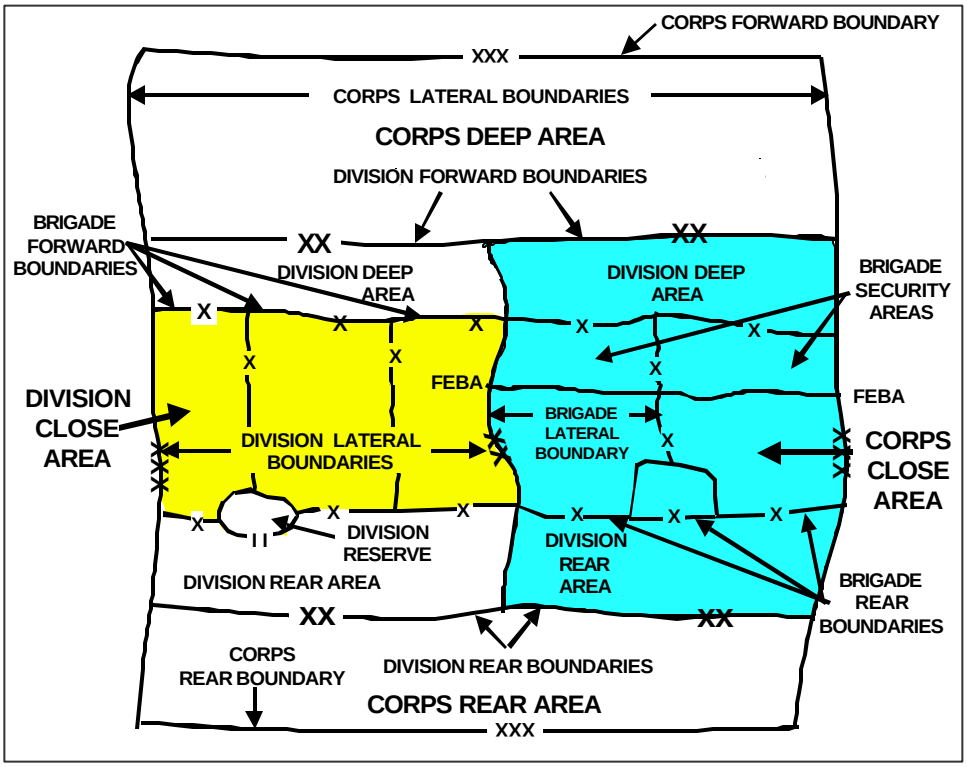


Figure 2-14. Deep, Close, and Rear Areas

commanders envision close combat taking place. Typically, the close area assigned to a maneuver force extends from its subordinates' rear boundaries to its own forward boundary (FM 3-0). Typically, the close area is where the majority of close combat occurs. It also includes the activities of forces directly supporting the fighting elements, such as direct support field artillery and logistics elements. The close area is historically the only location where the commander could conduct his decisive operation. One unit may conduct the decisive operation, while another conducts shaping operations within a close area. Division commanders whose AOs constitute the corps close area have the option of designating their own deep, close, and rear areas. Figure 2-14 illustrates this option.

Rear Area

2-78. Unlike close and deep areas, a rear area can be designated by the commander regardless of the organization of his AO into contiguous or noncontiguous subordinate AOs. When designated in the context of contiguous AOs, the *rear area* for any command extends from its rear boundary forward to the rear boundary of the next lower level of command. This area is provided primarily for the performance of support functions and is where the majority of the echelon's sustaining operations occur (FM 3-0). The commander designates

an individual responsible for conducting his sustaining operations within the rear area after considering the factors of METT-TC. He provides that individual the necessary command and control resources to direct the echelon's sustaining operations. At the corps and division echelons, this is the rear command post. Those operations include the following functions that assure his command's freedom of action and continuity of operations:

- ?? Combat service support.
- ?? Rear area and base security.
- ?? Movement control throughout the AO.
- ?? Terrain management throughout the AO.
- ?? Infrastructure development.

That individual may be the corps deputy commander, assistant division commander (support), or the forward support battalion commander depending on the echelon.

2-79. Regardless of the specific sustaining operations performed by an organization occupying the rear area, its focus on other-than-combat operations leaves it more vulnerable than combat organizations in close areas. Commanders may protect CS and CSS units and facilities in rear areas with combat forces. Geography or other circumstances may cause the commander to designate a noncontiguous rear area. This increases the challenge associated with providing rear area security due to the physical separation from combat units that would otherwise occupy a contiguous close area.

2-80. Between contiguous and noncontiguous AOs, the commander chooses the battlefield organization best suited to the tactical situation. For example, in an area defense the proximity of the enemy, the array and density of friendly forces, and the requirement to protect sustaining functions allows the commander to visualize decisive, shaping, and sustaining operations in terms of discrete areas. In contrast, within the context of a search and attack operation, the lack of information about the enemy, the need to block enemy escape, the existence of noncontiguous rear areas, and the nature of the AO may preclude organization of the battlefield into discrete close, deep, and rear areas.

FIRE SUPPORT COORDINATING MEASURES

2-81. Commanders assigned an AO employ FSCM to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. Fire support coordinating measures are either permissive or restrictive. Boundaries are the basic FSCM. The fire support coordinator recommends FSCM to the commander based on the commander's guidance, location of friendly forces, scheme of maneuver, and anticipated enemy actions. Once the commander establishes FSCM, they are entered into or posted on all the command's displays and databases. (FM 3-09 explains the use of all FSCM in more detail).

Permissive FSCM

2-82. The primary purpose of permissive measures is to facilitate the attack of targets. Once they are established, further coordination is not required to engage targets affected by the measures. Permissive FSCM include a coordinated fire line, fire support coordination line, and free-fire area.

2-83. **Coordinated Fire Line.** A *coordinated fire line* (CFL) is a line beyond which conventional, direct, and indirect surface fire support means may fire at any time within the boundaries of the establishing headquarters without additional coordination. The purpose of the CFL is to expedite the surface-to-surface attack of targets beyond the CFL without coordination with the ground commander in whose area the targets are located (JP 3-09). Brigades or divisions usually establish a CFL, although a maneuver battalion may establish one. It is located as close as possible to the establishing unit without interfering with maneuver forces to open up the area beyond to fire support. A higher echelon may consolidate subordinate unit CFLs. If this occurs, any changes to the subordinate CFLs are coordinated with the subordinate headquarters. (See Figure 2-15.)

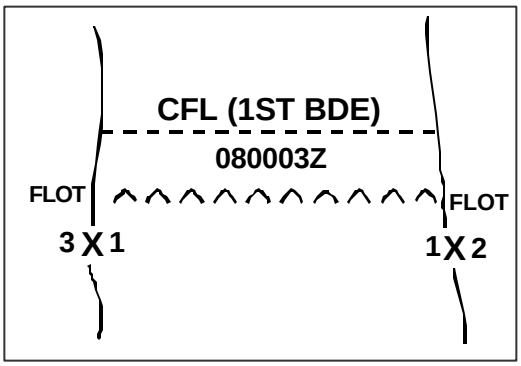


Figure 2-15. Coordinated Fire Line

2-84. **Fire Support Coordination Line.** The *fire support coordination line* (FSCL) is a FSCM that is established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. [See Figure 2-16.] The FSCL facilitates the expeditious attack of surface targets of opportunity beyond the coordinating measure. A FSCL does not divide an area of operations by defining a boundary between close and deep operations or a distinct area [JP 3-09 uses *zone*] for close air support. The FSCL applies to all fires of air, land, and sea-based weapon systems using any type of ammunition. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide. Supporting elements attacking targets beyond the FSCL must ensure that the attack will not produce adverse effects on, or to the rear of, the line. Short of an FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. The FSCL should follow well-defined terrain features. Coordination of attacks beyond the FSCL is especially critical to commanders of air, land, and special operations forces. 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 (JP 3-09).

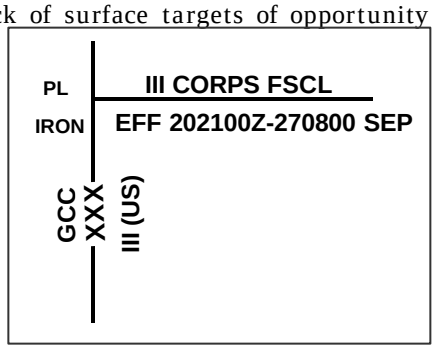


Figure 2-16. Fire Support Coordination Line

2-85. The commander designating a FSCL remains responsible for establishing the priority, effects, and timing of fires impacting beyond the FSCL. Coordination for attacks beyond the FSCL is through the air tasking order. The appropriate land or amphibious commander controls attacks short of the FSCL.

That commander uses the tactical air control system or the Army air-ground system to control the execution of close air support (CAS).

2-86. **Free-Fire Area.** A *free-fire area* (FFA) is a specific area into which any weapon system may fire without additional coordination with the establishing headquarters (JP 3-09). Normally, division or higher headquarters establish a FFA on identifiable terrain. (See Figure 2-17.)

Restrictive FSCM

2-87. A restrictive FSCM prevents fires into or beyond the control measure without detailed coordination. The primary purpose of restrictive measures is to provide safeguards for friendly forces. Restrictive FSCM include an airspace coordination area, no-fire area, restrictive fire area, and restrictive fire line. Establishing a restrictive measure imposes certain requirements for specific coordination before the engagement of those targets affected by the measure.

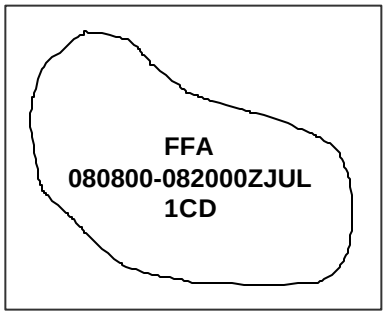


Figure 2-17. Free-Fire Area

2-88. **Airspace Coordination Area.** The *airspace coordination area* (ACA) is a three-dimensional block of airspace in a target area, established by the appropriate ground commander, in which friendly aircraft are reasonably safe from friendly surface fires. The airspace coordination area may be formal or informal (JP 3-09.3). Time, space, or altitude separates aircraft and indirect fire. The purpose of the ACA is to allow the simultaneous attack of targets near each other by fixed-wing aircraft and other fire support means. Several techniques may be used in this role. The technique selected depends on the time available, tactical situation, unit SOPs, and state of training. (FM 3-52 defines ACM.)

2-89. The airspace control authority establishes formal ACAs at the request of the appropriate ground commander. This is normally a separate brigade or higher-echelon commander. Formal ACAs require detailed planning. The design of the ACA's vertical and lateral limits allows freedom of action for air and surface fire support for the greatest number of foreseeable targets.

2-90. The echelon fire support cell coordinates the location and extent of the ACM with the A2C2) element and the fire direction center. It is located above the target area as recommended by the air liaison element to the fire support cell. The type of aircraft and the ordnance dictate the size of the area. Vital information defining the formal ACA includes minimum and maximum altitudes, a baseline designated by grid coordinates at each end, the width of the ACA from either side of the baseline, and effective times. (See Figure 2-18.)

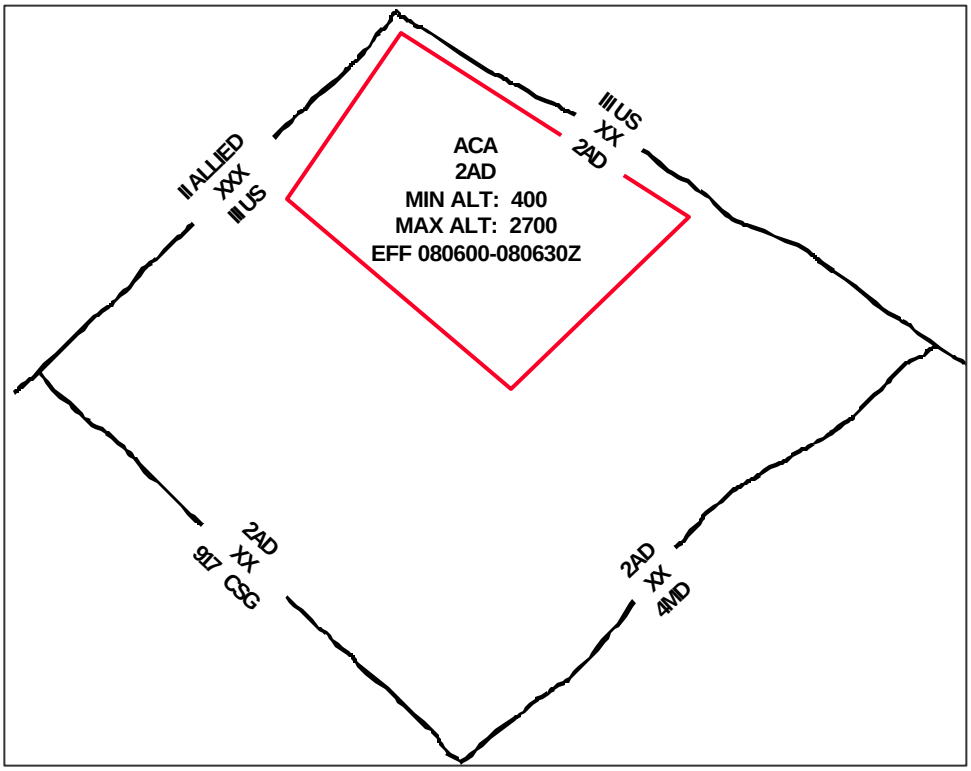


Figure 2-18. A Formal Airspace Coordination Measure

2-91. The maneuver commander may establish informal ACAs. He may separate aircraft and surface fires by distance (lateral, altitude, or a combination) or by time. Lateral separation is effective for coordinating fires against targets that are adequately separated by at least one kilometer from flight routes to ensure aircraft protection from the effects of friendly fires. An example of a lateral separation technique is: "Aircraft stay west of grid line 62." Altitude separation is effective for coordinating fires when aircraft remain above indirect fire trajectories and their effects. This technique is effective when aircrews and firing units engage the same or nearby targets. An example of altitude separation is: "Aircraft remain above 3000 feet mean sea level in quadrant northwest of grid PK7325."

2-92. A combination of lateral and altitude separation is the most restrictive technique for aircraft and may be required when aircraft must cross the gun target line of a firing unit. Time separation requires the most detailed coordination and may be required when aircraft must fly near indirect-fire trajectories or ordnance effects. The commander must coordinate the timing of surface fires with aircraft routing. This ensures that even though aircraft and surface fires may occupy the same space, they do not do so at the same time. Surface and air-to-ground fires should be synchronized. All timing for surface fires will be based on a specific aircraft event time. Fire support personnel and tactical air controllers should select the separation technique that requires the least coordination without adversely affecting timely fires or the aircrew's ability to safely complete the mission.

2-93. **No-Fire Area.** A *no-fire area* (NFA) is a land area designated by the appropriate commander into which fires or their effects are prohibited (JP 3-09). (See Figure 2-19.) A commander uses a NFA to protect independently operating elements, such as forward observers and special operating forces. He can also use it to protect friendly forces in the rear area and for humanitarian reasons, such as preventing the inadvertent engagement of displaced civilian concentrations, or to protect sensitive areas, such as cultural monuments. There are two exceptions to this rule:

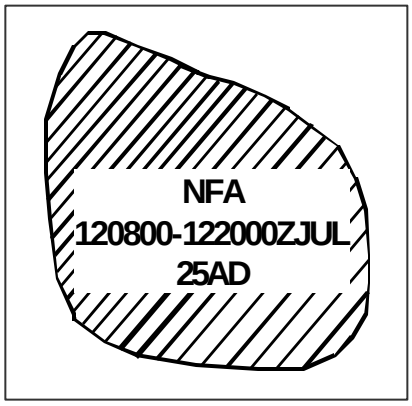


Figure 2-19. No-Fire Area

- The establishing headquarters may approve fires within the NFA on a case-by-case mission basis.
- When an enemy force within a NFA engages a friendly force, the friendly force may engage a positively identified enemy force to defend itself.

2-94. **Restrictive Fire Area.** A *restrictive fire area* (RFA) is an area in which specific restrictions are imposed and into which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters (JP 3-09). (See Figure 2-20.) The purpose of the RFA is to regulate fires into an area according to the stated restrictions, such as no unguided conventional or dud-producing munitions. Maneuver battalion or larger ground forces normally establish RFAs. On occasion, a company operating independently may establish a RFA. Usually, it is located on identifiable terrain, by grid or by a radius (in meters) from a center point. The restrictions on a RFA may be shown on a map or overlay, or reference can be made to an operation order that contains the restrictions.

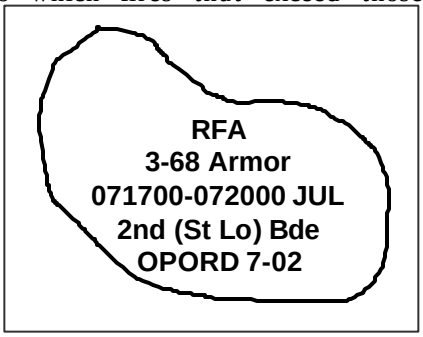


Figure 2-20. Restrictive Fire Area

2-95. **Restrictive Fire Line.** A *restrictive fire line* (RFL) is a line established between converging friendly surface forces that prohibits fires or their effects across that line (JP 3-09). Both or only one of those converging may be moving. Fires and their effects can cross a RFL when the event has been coordinated with the establishing and affected organizations. The purpose of the line is to prevent interference between converging friendly forces, such as what occurs during a linkup operation. The next higher common commander of the converging forces establishes the RFL. Located on identifiable terrain, it is usually located closer to the stationary force—if there is one—than to the moving force. Alternatively, the commander can use a RFL to protect sensitive areas, such as cultural monuments. (See Figure 2-21.)

FIRE SUPPORT TARGETS

2-96. In the fire support context, a *target* is an area designated and numbered for future firing (JP 1-02). There are graphic control measures for point targets, circular targets, rectangular targets, and linear targets. Figure 2-22 depicts these symbols. The commander designates fire support targets using a two-letter and four-digit code established in field artillery doctrine. He may group two or more targets for simultaneous engagement. He may also attack individual targets and groups of targets in series or in a predetermined sequence. When this occurs, it is referred to as a series of targets.

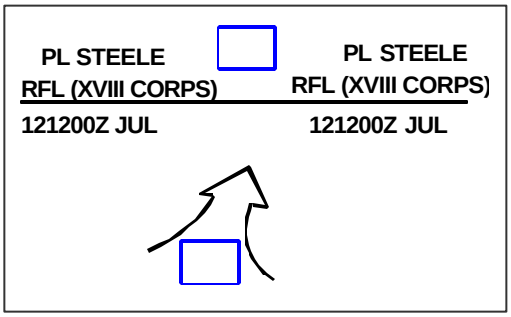


Figure 2-21. Restrictive Fire Line

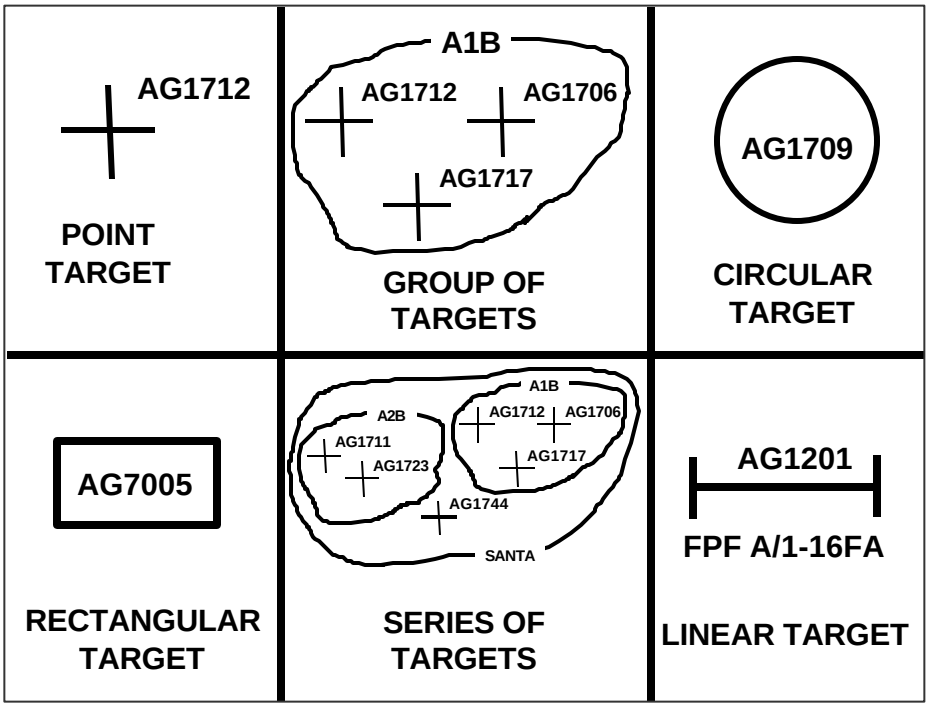


Figure 2-22. Targets

2-97. Doctrine classifies each fire support target as either a planned target or a target of opportunity. Targets of opportunity are not planned in advance and are engaged as they present themselves in accordance with established engagement criteria and rules of engagement. Planned targets are ones on which fires are prearranged, although the degree of this prearrangement may vary.

2-98. Individually planned fire support targets may be further subdivided into scheduled and on-call fires. Scheduled targets are planned targets on which field artillery and other fire support assets deliver their fires in accordance with a

pre-established time schedule and sequence. On-call targets are planned targets engaged in response to a request for fires rather than in accordance with an established time schedule. An on-call target requires less reaction time than a target of opportunity. The degree of prearrangement for the on-call target influences the reaction time from request to execution–the greater the prearrangement, the faster the reaction time. Priority targets are an example of on-call targets that have short reaction times since each priority target has a fire unit placed on it when it is not engaged in other fire missions. The final protective fires (FPF) of A Battery, 1st Battalion 16th Field Artillery in Figure 2-22 is an example of a priority target. (See FM 3-09 for additional information regarding fire support.)

FORWARD LINE OF OWN TROOPS

2-99. The *forward line of own troops* (FLOT) is a line which indicates the most forward positions of friendly forces in any kind of military operation at a specific time. The forward line of own troops normally identifies the forward location of covering and screening forces (JP 1-02). In the defense, it may be beyond, at, or short of the forward edge of the battle area (FEBA), depending on the tactical situation. (Chapter 9 defines the FEBA with other defensive control measures.) It does not include small, long-range reconnaissance assets and similar stay-behind forces. Friendly forces forward of the FLOT may have a restrictive fire coordination measure, such as an RFA, placed around them to preclude fratricide. Figure 2-23 depicts the symbol for the FLOT.

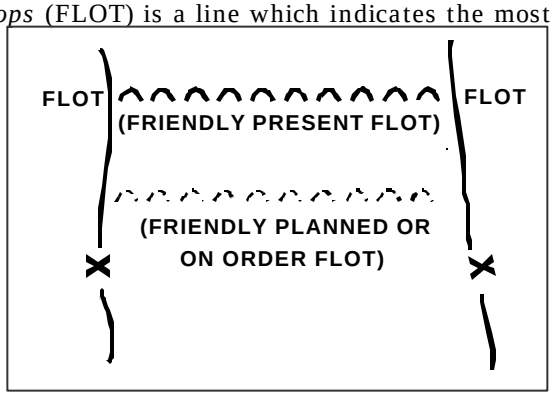


Figure 2-23. Forward Line of Own Troops

LINE OF CONTACT

2-100. **The *line of contact* (LC) is a general trace delineating the location where friendly and enemy forces are engaged.** The commander designates the enemy side of the LC by the abbreviation "ENY." In the defense, a LC is often synonymous with the FLOT. In the offense, a LC is often combined with the LD. Chapter 4 discusses the LD. Figure 2-24 depicts the symbol for the LC.

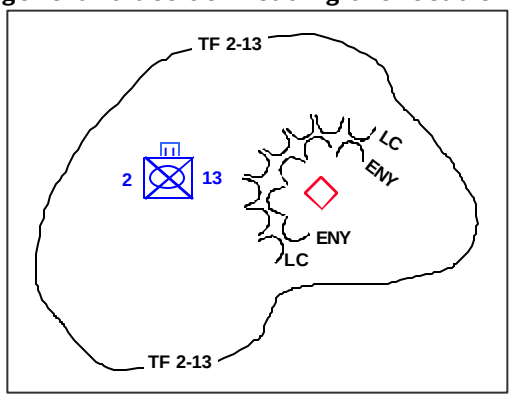
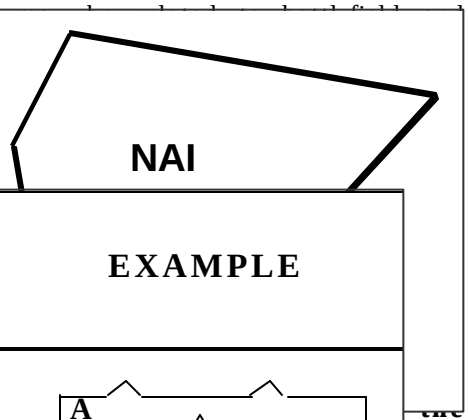


Figure 2-24. Line of Contact

NAMED AREA OF INTEREST

2-101. **A *named area of interest* (NAI) is the geographical area where information that will satisfy a specific information re-**

quirement can be collected. NAIs are usually selected to capture indications of enemy courses of action but a
environment conditions. The commanc
the actual area he wants observed, ra
possible to redesignate a NAI as a ta
enemy activity within the area, allowi
combat power on that area. Figure 2-2



OBSTACLE CONTROL MEASURE	EMPLACEMENT AUTHORITY FROM	EMPLACEMENT AUTHORITY TO	GRAPHIC	EXAMPLE
ZONE	CORPS	DIV	Letter Designation Effect Graphic Optional	
	DIV	BDE		
BELT	CORPS	BDE[1]	Number Designation Effect Graphic Normal	
	DIV	BDE[1]		
	BDE	TF		
GROUP	DIV	BDE[2]	Letter Designation Effect Symbol is the Graphic	Obstacle Groups in a Belt
	BDE	TF[2]		
	TF	CO TRP		
OBSTACLE RESTRICTED AREA (ORA)	ANY		52ID 120900-162400SepXX	

1 - Rarely done by corps and divisions, but possible.

2 - Done only when directed and integrated with corps or division fire plans.

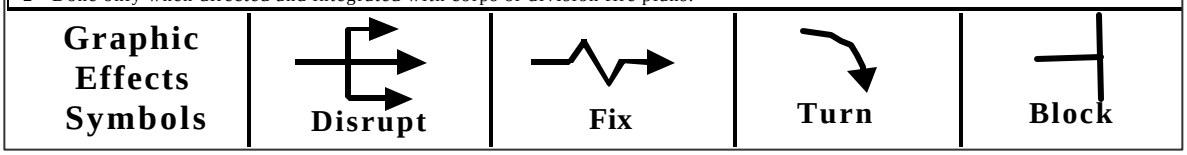


Figure 2-26. Obstacle Control Measure Graphics

2-105. If the obstacle zone encompasses the entire brigade AO, another graphic is unnecessary. Commanders may designate the entire AO as an obstacle zone, with the unit boundaries defining the geographical limits of the zone. Obstacle zones do not cross brigade boundaries. Commanders assign obstacle zones to a single subordinate unit to ensure unity of effort, just as they would when assigning defensive AOs or battle positions. This keeps tactical obstacle responsibility along the same lines as control of direct and indirect fires. This does not normally create vulnerabilities on the boundary between units since the commander bases his assignment of both subordinate AOs and obstacle zones on defined avenues of approach.

2-106. A commander does not normally assign an obstacle effect (block, fix, turn, or disrupt) to an obstacle zone. This allows his subordinate commanders flexibility in using obstacles. The commander should establish construction and resourcing priorities between different obstacle zones.

Obstacle Belts

2-107. An *obstacle belt* is a brigade-level command and control measure, normally given graphically, to show where within an obstacle zone the ground tactical commander plans to limit friendly obstacle employment and focus the defense (JP 1-02). It assigns an intent to the obstacle plan and provides the necessary guidance on the overall effect of obstacles within a belt. They plan obstacle belts within assigned obstacle zones to grant obstacle-emplacement authority to their major subordinate units. Obstacle belts also focus obstacles to support the brigade scheme of maneuver and ensure that obstacles do not interfere with the maneuver of any higher headquarters.

2-108. Obstacle belts are restrictive, but also direct a subordinate unit to construct one or more obstacles to achieve an effect in the area. They do not specify the type or number of obstacles. Obstacle belts do not cross unit boundaries for the same reasons as discussed in obstacle zones. A single unit is responsible for a belt; however, a commander may assign more than one belt to a unit.

2-109. A brigade commander normally assigns an obstacle effect and priority to each obstacle belt. As with the obstacle zone, the target and relative location are apparent. Adding a specific obstacle effect gives purpose and direction to battalion task force obstacle planning. When brigade commanders assign an obstacle effect, they ensure that obstacles within the belt complement the brigade fire plan.

2-110. A corps, division, or brigade commander may authorize emplacement authority for certain types of protective obstacles outside of obstacle zones or belts. Normally, the commander authorizes company team and base commanders to emplace protective obstacles within 500 meters of their positions, depending on the factors of METT-TC. The commander usually limits the types of obstacles a unit may use for protective obstacles that are outside of obstacle-control measures. For example, he may allow only wire- and command-detonated mines outside of control measures for protective obstacles. Furthermore, he may require that minefields be fenced on all sides to prevent fratricide, after obtaining legal guidance concerning current rules and policies.

Obstacle Groups

2-111. ***Obstacle groups*** **are one or more individual obstacles grouped to provide a specific obstacle effect.** Task forces use obstacle groups to ensure that company teams emplace individual obstacles supporting the task force's scheme of maneuver. In rare cases, brigades, divisions, or even corps may use obstacle groups for specific tactical obstacles. Also, units integrate obstacle groups with their direct- and indirect-fire plans. Brigade and task force commanders can plan their placement anywhere in the obstacle zones or belts, respectively.

2-112. Unlike obstacle zones or belts, obstacle groups are not areas but relative locations for actual obstacles. Commanders normally show obstacle groups using the obstacle-effect graphics. When detailed planning is possible (to include detailed on-the-ground reconnaissance), commanders may show obstacle groups using individual obstacle graphics.

2-113. The company team commander and the engineer can adjust obstacles in the group if the intent and link to the fire plan remain intact. Company team commanders make minor changes to obstacles and fire-control measures based on terrain realities. For example, a commander may move a fixing obstacle group and direct-fire TRPs a hundred meters to avoid having them masked by rolling terrain. A major change to the obstacle group location requires the approval of the commander who ordered the obstacle group emplacement.

Individual Obstacles

2-114. Each type of individual obstacle, such as abatis, antitank ditch, booby traps, mines and minefields, roadblocks, craters, and wire obstacles has its associated graphic. Once a unit constructs an individual obstacle, the obstacle's location is recorded and reported through the chain of command. Commanders must report individual obstacles in sufficient detail so any unit moving through the area can bypass or reduce the obstacle without excessive risk. Each headquarters is responsible to ensure exact obstacle locations are disseminated throughout its organization. Individual obstacle graphics are rarely shown on maps above the battalion echelon and are not depicted in this manual. (FM 3-34.1 defines individual obstacles and establishes the graphics for them.)

Obstacle Restrictions

2-115. Commanders may use obstacle restrictions to provide additional obstacle control and to limit the specific types of obstacles used, such as no buried mines. These restrictions ensure that subordinates do not use obstacles with characteristics that impair future operations. It also allows commanders to focus the use of limited resources for the decisive operation by restricting their use elsewhere. An *obstacle restricted area* (ORA) is a command and control measure used to limit the type or number of obstacles within an area (JP 1-02). The commander with emplacement authority uses ORAs to restrict obstacle placement. The ORA graphic depicts the area effected, the unit imposing the restriction, and the restrictions in effect.

PHASE LINE

2-116.A *phase line* (PL) is a line utilized for cont
operations, usually a terrain feature extending a
1-02 uses *zone of action*] (JP 1-02). (See Figure
PLs to control the maneuver of his units. Phase
designated as such and do not establish any s
units, unless the operations order so specifies.
places them along easily recognizable terrain fe
tracks, rivers, and ridgelines—to ensure easy ide
this is less important if all units are equipped wi
Some PLs have additional designations for speci
probable line of deployment (PLD). Chapter 5 discu

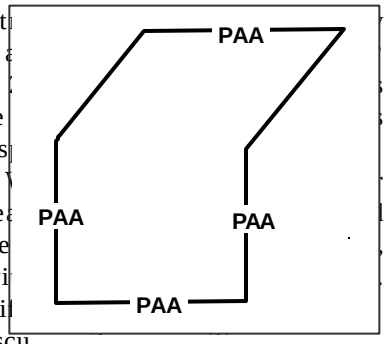


Figure 2-28. Position Area for Artillery

POSITION AREA FOR ARTILLERY

2-117.**A *position area for artillery* (PAA) is an area assigned to an artillery unit where individual artillery systems can maneuver to increase their survivability. A PAA is not an AO for the artillery unit**

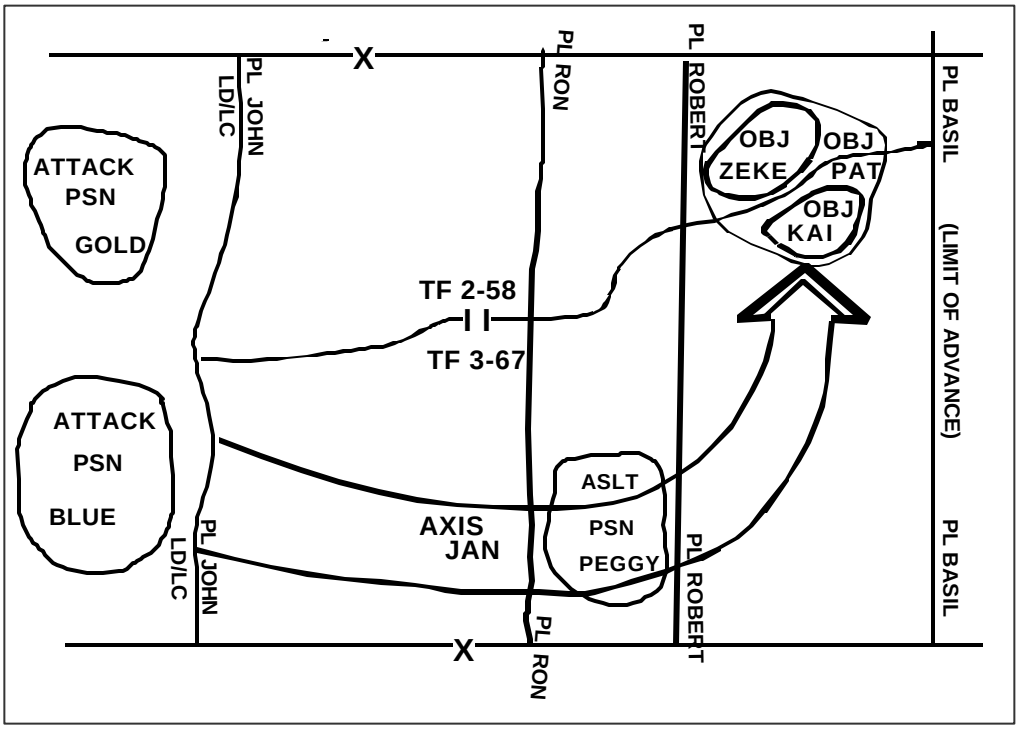


Figure 2-27. Phase Lines Used with Other Control Measures

occupying it. The commander assigns PAAs for terrain management purposes. Establishing a PAA lets other subordinate units know they should avoid occupying that same terrain, thus avoiding enemy counterfire. While the exact size of a PAA depends on the factors of METT-TC, a Paladin platoon normally requires a PAA encompassing two square kilometers, and a Multiple Launch Rocket System (MLRS) platoon requires nine square kilometers. (See Figure 2-28.)

2-118.The maneuver echelon operations officer the terrain establishes the PAA. The occupyin same authority and responsibilities toward th unit assigned an AO. For example, other without clearing that movement with the art cupying a PAA establishes liaison with the u PAA is located. The echelon fire support office accordance with standard command and suppo of common command and control relationship artillery missions, see FM 3-09.*)*

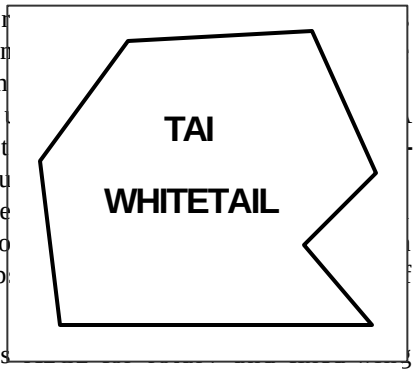


Figure 2-30. Targeted Area of Interest

2-119.The decision to establish a PAA affects integration. A PAA is a base upon which to est lateral deconfliction and areas for rotary- a depending on high- or low-angle artillery fires.

ROUTE

2-120.A *route* is the prescribed course to be traveled from a specific point of origin to a specific destination (JP 1-02). (See Route Iron in Figure 2-29.) Routes can have different purposes. Those purposes can be added as adjectives to specify different types of routes. Examples of such routes include passing route and main supply route (MSR). The commander can further designate MSRs as open, supervised, dispatch, reserved, or prohibited. The commander can assign names, numbers, or alphanumeric designations to routes within his AO. (See FM 4-01.30 for additional information concerning route classification and marking.)

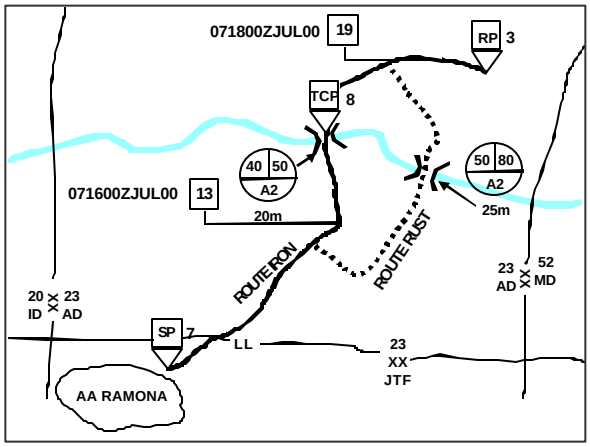


Figure 2-29. Routes

TARGETED AREA OF INTEREST

2-121.**A *targeted area of interest* (TAI) is the geographical area or point along a mobility corridor where successful interdiction will cause the enemy to abandon a particular course of action or requires him to use specialized engineer support to continue. It is where he can be acquired and engaged by friendly forces.** The commander designates TAIs where he believes his unit can best attack high-payoff targets. The unit staff develops TAIs during the targeting process, based on the currently available products resulting from the IPB process. These TAIs are further refined during wargaming and finally approved by the commander during COA approval. The shape of a TAI reflects the type of target and the weapon system intended to engage that target. They are normally cued by surveillance assets, which include UAVs, combat observation and lasing teams (COLTs), long-range surveillance units (LSUs), fixed-wing reconnaissance

aircraft using a variety of sensors, and special operations forces. A commander can designate a TAI for any of his organic or supporting systems, including CAS. Figure 2-30 depicts TAI Whitetail.