Chapter 1
Airspace Control Operational Context

This chapter refreshes the leader's understanding of relationships. It discusses the nature of unified land operations and unified action. Then it discusses airspace in operational environments with joint airspace control. Next, it discusses theater air-ground systems and methods of control. Lastly, it discusses airspace control through mission command and the operations process.

UNIFIED LAND OPERATIONS AND UNIFIED ACTION

1-1. For Army forces, airspace control primarily aims to integrate airspace users during planning and in near-real-time execution. Integration is one of the principles of unified land operations. Army commanders must integrate their actions and operations in the airspace over an area of operations within the larger framework of unified action. This integration occurs in accordance with the commander's intent, priorities, and acceptable levels of risk. Successful integration maximizes all airspace users' capabilities while minimizing adverse impacts.

1-2. Army forces conduct unified land operations as part of a larger national effort called unified action. *Unified action* is the synchronization, coordination, and/or integration of the activities of governmental and nongovernmental entities with military operations to achieve unity of effort (JP 1). See JP 3-0 for more information on unified action. Unified land operations are how the Army seizes, retains, and exploits the initiative to gain and maintain a position of relative advantage in sustained land operations to set the conditions for favorable conflict resolution. This is accomplished through the simultaneous combination of offensive, defensive, and stability operations that set conditions for favorable conflict resolution. The Army's two core competencies of combined arms maneuver and wide area security, provide the means for balancing the application of Army warfighting functions within the tactical actions and tasks inherent in offensive, defensive, and stability operations. See ADP 3-0 and ADRP 3-0 for more information on unified land operations.

1-3. Unified land operations acknowledge that strategic success requires fully integrating U.S. military operations with the efforts of interagency and multinational partners. As such, Army leaders integrate their actions and operations within this larger framework, collaborating with entities outside their direct control. This requirement to integrate actions is present at all echelons.

AIRSPACE IN OPERATIONAL ENVIRONMENTS

1-4. Army forces conduct unified land operations in operational environments that are complex, ever changing, and uncertain. An *operational environment* is a composite of conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0). An operational environment includes physical areas (air, land, maritime, space, and cyberspace domains) and the information environment. See ADRP 3-0 for more information on an operational environment.

1-5. Army forces are assigned an area of operations by the joint force commander. An *area of operations* is an operational area defined by the joint force commander for land and maritime forces that should be large enough to accomplish their missions and protect their forces (JP 3-0). For land operations, an area of operations includes subordinate areas of operations as well. The Army or land force commander is the supported commander within an area of operations designated by the joint force commander. Within their areas of operations, commanders integrate and synchronize the elements of combat power. To facilitate this integration and synchronization, commanders have the authority to designate targeting priorities, effects, and timing.

1-6. Airspace is a component of an operational environment critical to successful Army or land operations. Army forces use airspace over an area of operations to—

- Collect information.
- Conduct air operations.
- Deliver direct and indirect fires.
- Conduct air and missile defense.
- Conduct sustainment.

1-7. Airspace is not owned by individual subordinate organizations in the sense that an assigned area of operations confers ownership of the ground. Airspace over an Army area of operations remains under the purview of the joint force commander (JFC). Other military and civilian organizations operating in the joint operations area have airspace requirements over an Army area of operations. These organizations may require airspace to—

- Conduct joint air operations.
- Conduct area air defense.
- Deliver joint fires.
- Conduct civil air operations (see appendix G).

1-8. Other commanders with a mission encompassing the joint operations area have the latitude to plan and execute these operations in the airspace over an Army area of operations. Commanders with such a mission must coordinate the operation to avoid adverse effects and fratricide. If those operations would have an adverse impact within an Army or land area of operations, the commander assigned to execute functions that extend across the joint operations area must readjust the plan, solve the problem, or consult with the JFC for resolution.

JOINT AIR OPERATIONS

1-9. Normally, the JFC designates a joint force air component commander (JFACC) to synchronize the joint air effort. Components retain organic capabilities (sorties) to accomplish missions assigned by the JFC. Components also make capabilities, either JFC directed or excess, available to the JFC for tasking by the JFACC. Generally, Army capabilities are normally included on the air tasking order, however, they are normally considered organic to ground units and not available for tasking by the JFACC. The JFACC plans for and tasks only those joint capabilities made available by the JFC for JFACC tasking. The JFACC has the authority to direct and employ these joint capabilities for a common purpose based on the JFC's concept of operations and air apportionment decisions. See JP 3-30 for more information on joint air operations.

1-10. The responsibilities of the JFACC, the area air defense commander (AADC), and airspace control authority (ACA) are interrelated and the JFC normally assigns them to one individual for unity of effort. These responsibilities are normally assigned to the JFACC. Designating one Service component commander as the JFACC, AADC, and ACA often simplifies the coordination required to develop and execute fully integrated air operations.

AREA AIR DEFENSE

1-11. The AADC oversees defensive counterair (DCA) operations, which include both air and missile threats. The AADC identifies airspace coordinating measures (ACMs) that support and enhance DCA operations, identifies required airspace management systems, establish procedures for systems to operate within the airspace, and incorporate them into the airspace control system. See JP 3-01 for more information on the AADC.

JOINT FIRES

1-12. *Joint fires* are fires delivered during the employment of forces from two or more components in coordinated action to produce desired effects in support of a common objective (JP 3-0). Often each Service component commander has airspace requirements that require close coordination and integration with another area of operations commander. See JP 3-09 for more information on joint fires.

CIVIL AIR TRAFFIC CONTROL

1-13. Typically, civilians use airspace alongside ongoing military operations. Civilian airliners, nongovernmental organizations, and relief agencies require airspace to continue their operations. They must have the ability to coordinate their activities with military airspace users (see aeronautical information publications (AIPs) published by the host nation).

JOINT AIRSPACE CONTROL

1-14. Competing airspace users balance the demands for and integrate their requirements for airspace. *Airspace control* includes the capabilities and procedures used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace (JP 3-52). Airspace control increases combat effectiveness while placing minimum restraint upon airspace users. Airspace control relies upon airspace management capabilities provided by airspace control elements and U.S. civil and host-nation air traffic control.

1-15. *Airspace management* is the coordination, integration, and regulation of the use of airspace of defined dimensions (JP 3-52). Airspace management supports airspace control through the coordination, integration, and regulation of airspace users by airspace control elements within airspace of defined dimensions. See JP 3-52 for more discussion on airspace management.

1-16. The JFC is responsible for airspace control in the joint operations area. JFCs establish command relationships and direct and guide subordinate commanders. They organize forces to accomplish the mission based on their visions and a concept of operations. They develop this concept of operations with their service component commanders and supporting organizations. Their direction and guidance enable effective spans of control, responsiveness, tactical flexibility, and protection.

1-17. To help balance the various airspace user demands, the JFC usually designates an ACA responsible for establishing an airspace control system. An *airspace control system* is an arrangement of those organizations, personnel, policies, procedures, and facilities required to perform airspace control functions (JP 3-52). The JFC tasks the ACA to assume overall responsibility for operating the airspace control system in the airspace control area. The ACA, working with the other components, develops policies and procedures for all airspace users. In addition, the ACA establishes an airspace control system that coordinates and integrates airspace use under JFC authority.

1-18. The ACA approves, amends, or disapproves airspace requests according to the JFC's guidance and objectives. The ACA does not have the authority to approve, disapprove, or deny combat operations. That authority is only vested in operational commanders. If the ACA and an affected Service component commander cannot agree on an airspace issue, they refer the issue to the JFC for resolution. See JP 3-52 for more discussion on the ACA.

THEATER AIR-GROUND SYSTEM

1-19. The theater air-ground system (TAGS) is the sum of the component systems that support the airspace control system. The TAGS links decision makers and command posts from all components. The ACA may delegate authority to control an assigned volume of airspace to elements of the TAGS. For more information on the TAGS, see ATP 3-52.2.

1-20. The Army component of the TAGS is the Army air-ground system. The AAGS provides for interface between Army and air support agencies of other Services in the planning, preparation, execution, and assessment of airspace use.

1-21. The AAGS is used for coordinating and integrating air support requirements, joint air-ground operations and airspace users. The AAGS enables Army commanders and staffs to coordinate and integrate the actions of Army airspace users over the area of operations regardless of whether they have been assigned airspace control responsibility for a volume of airspace. AAGS also provides Army commanders the ability to control volumes of airspace when delegated control authority by the ACA. There are two methods of airspace control, positive and procedural.

METHODS OF CONTROL

1-22. Army commanders and staffs utilize positive control methods, procedural control methods, or a combination of both methods. When delegated control authority by the ACA, the Army procedurally controls assigned airspace—for example the airspace up to the coordinating altitude—and may use positive control for small volumes of airspace.

1-23. While the Army's airspace control methodology emphasizes procedural control of airspace use, it includes the flexibility to utilize positive control or a combination of the two throughout a commander's area of operations. For example, within a commander's area of operations, small areas of positive control as well as large areas under procedural control exist. In areas requiring positive control, air traffic services units provide positive airspace control. For all other areas, airspace users use procedural control. Current technology enables procedural control to be flexible and responsive and allowing for rapid airspace adjustments. There may be portions of an area of operations where preplanned airspace coordinating measures and procedures are the sole means of procedural control. This can result from a lack of communications (voice or digital) or electronically aided situational awareness due to terrain, mission profile, distance, or adversary actions to degrade the network.

POSITIVE CONTROL

1-24. *Positive control* is a method of airspace control that relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein (JP 3-52). Army air traffic service units train, man, and equip to perform positive control of established airfields and tactical landing sites.

PROCEDURAL CONTROL

1-25. *Procedural control* is a method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures (JP 3-52). Procedural control should be uncomplicated and understood by all aircrew members, air traffic control personnel, air defense and fires weapon system operators, and airspace element personnel. In addition to air traffic service personnel, the airspace elements in the AAGS are organized, trained, and equipped to ensure Army forces can provide near-real-time procedural control and balance airspace control system requirements with mission command. Near-real-time procedural control pertains to the timeliness of data or information which has been delayed by the time required for electronic communication and automatic data processing. Furthermore, the use of near-real-time implies that there are no significant delays to the process.

AIRSPACE CONTROL AND MISSION COMMAND

1-26. Mission command is essential to the effective conduct of operations. Through mission command, commanders initiate and integrate all military functions and actions toward a common goal of mission accomplishment. Through the mission command warfighting function, commanders (supported by their mission command system) integrate the other warfighting functions (movement and maneuver, intelligence, fires, sustainment, and protection) into a coherent whole to mass the effects of combat power at the decisive place and time.

1-27. Army airspace users are ground forces operating in an inherently joint environment. Commanders are responsible for integrating Army airspace users, regardless of who controls the airspace, within the larger unified action framework. Commanders continuously integrate airspace users throughout their areas of operations while conducting operations. This affords commanders the flexibility and responsiveness to capitalize on opportunities and operate in a manner consistent with mission command.

1-28. Commanders need support to exercise mission command effectively. At every echelon of command, each commander establishes a *mission command system*—the arrangement of personnel, networks, information systems, processes and procedures, and facilities and equipment that enable commanders to conduct operations (ADP 6-0). The AAGS is a supporting component of the mission command system.

AIRSPACE CONTROL AND THE OPERATIONS PROCESS

1-29. Airspace control is an additional task of the mission command warfighting function and a continually refined activity within the operations process. As a supporting task of the mission command warfighting function, airspace elements belong to the mission command functional cell and cross functionally organize into the integrating cells as required. As a continuing activity, commanders and staffs continuously plan for and coordinate airspace use with other components of the TAGS and AAGS.

1-30. The Army's overarching framework for exercising airspace control is the operations process. It consists of the major mission command activities performed during operations: planning, preparing, executing, and continually assessing the operation. The commander drives the operations process through leadership.

1-31. Airspace elements play an integral role in planning by providing airspace control subject matter expertise into the planning process. Airspace planning focuses on setting conditions for near-real-time airspace control during mission execution and so provides commanders flexibility while reducing risk. See Chapter 3 for more details.

1-32. Airspace elements participate in certain preparation activities performed by units to improve their ability to execute an operation. Planning revision and refinement as well as rehearsals are the particular preparation activities that airspace element personnel support. See Chapter 3 for more details.

1-33. By exercising mission command, commanders empower leaders to develop the situation, adapt, and act decisively to changes during mission execution. Using near-real-time procedural control, airspace element personnel can direct Army airspace users to shift airspace use to a different route, altitude, or volume of airspace. See Chapter 4 for more details.

1-34. Airspace elements continually monitor and assess operations, airspace use, and future airspace use as part of their running estimate. These running estimates provide the analytical basis for airspace use recommendations. These recommendations focus on near-real-time airspace control or on posturing for future use airspace. See Chapter 4 for more details.

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Chapter 2
Airspace Control in Operations

This chapter describes the Army's approach to airspace control. The chapter addresses exercising airspace control, the principles of effective airspace control, and delineates the key roles and responsibilities, by echelon, of the Army air-ground system.

AIRSPACE CONTROL INTEGRATION

2-1. Commanders exercise airspace control to integrate Army forces with all airspace users. Integration aligns the commander's intent, priorities, and risk guidance; maximizes all airspace users' capabilities; and minimizes adverse impacts. Commanders understand that they do not operate independently but as part of a larger force. They integrate and synchronize their actions and operations within this larger framework, collaborating with entities outside of their direct control. Just as commanders manage terrain throughout their areas of operations (AOs), they continuously collaborate with unified action partners to integrate the use of airspace. In essence, this affords commanders the same flexibility and responsiveness for airspace use as for ground operations. Army commanders are the supported commanders within their designated AOs. As such, other commanders must coordinate their airspace use to avoid adverse effects and fratricide.

2-2. Army commanders exercise mission command to control Army airspace users—commander-to-commander—while airspace elements control airspace use. This is a subtle but important distinction. Army commanders direct the employment of Army assets while airspace element personnel direct the best use of the airspace. To exercise mission command, Army commanders have the authority to direct (control) the maneuver of all Army airspace users within their designated AOs, so that the best use of airspace is made. If the airspace control authority assigns airspace control responsibility to the Army for a volume of airspace in the airspace control plan (ACP) or airspace control order (ACO), Army commanders exercise airspace control over all airspace users. This authority to exercise airspace control for an assigned volume of airspace does not include the authority to approve, disapprove, or deny joint combat operations.

2-3. Airspace elements do not routinely manage the flight path or trajectory of individual airspace users. Rather, airspace elements integrate airspace use for flight paths and trajectories in planning and execution to manage risk. Only when two or more airspace users conflict do airspace elements direct changes in flight path or, in the case of fires, coordinate with the fires cell to alter the trajectory or timing of fires. These changes are based on the commanders' mission priorities and risk guidance. Pilots, unmanned aircraft system operators, and weapon system controllers still maintain the responsibility to make the directed changes to their flight path or trajectory.

AIRSPACE CONTROL PRINCIPLES

2-4. Effective airspace control enables commanders to respond effectively to changing operational environments with appropriate, flexible, and timely actions. Army forces use the principles of airspace control, which complement joint airspace control principles, to integrate all airspace users. The five principles of Army airspace control are:

- Airspace control is action executed through combined arms formations.
- Airspace control is a commander's responsibility based on the commander's intent, priorities, and risk guidance.
- Airspace control is continually planned for and coordinated throughout the operations process.
- Airspace control is an integral part of risk management.
- Near-real-time airspace control requires continuous assessment.

2-5. Airspace control is action executed through combined arms formations. Airspace is a crucial part of the operational area and is inherently joint. The Army has fielded airspace element personnel and capabilities down to brigade level. These capabilities enable effectively integrating airspace use into operations. These capabilities are fully integrated with joint airspace control processes thereby providing the Army and joint force commanders with expanded airspace control options.

2-6. Joint aircraft control processes facilitate the integration of Army airspace users within airspace. However, ground commanders require greater responsiveness to defeat the enemy. Army air-ground operations are defined as the simultaneous or synchronized employment of ground forces with aviation maneuver and fires to seize, retain, and exploit the initiative. These type of operations require deliberate planning by the units conducting the operations in order to mitigate the risk posed from joint airspace users as well as ground fires. See FM 3-04 for additional information regarding Army air-ground operations.

2-7. Airspace control is a commander's responsibility. Commanders drive the operations process and airspace control is an additional task of the mission command warfighting function. To successfully command, commanders at all echelons must be capable of integrating and synchronizing forces and warfighting functions, both ground and air. The commander is the central figure in mission command, essential to integrating the capabilities of the warfighting functions to accomplish the mission.

2-8. Airspace control is a continuing activity of the operations process. Commanders use the operations process to help them decide when and where to make decisions, control operations, establish priorities, and provide command presence. Throughout the operations process, commanders, assisted by their staffs, integrate numerous processes and activities. Airspace control is an activity that commanders integrate and synchronize with other activities into operations. To be most effective, the airspace element must ensure deliberate airspace planning is conducted based on guidance from the commander. During the preparation phase of the operations process, the commander must ensure the staff conducts a thorough wargame and rehearsal of the airspace control plan. These actions help to validate the airspace control plan, as well as to identify any necessary changes prior to executing the plan. Airspace elements continually monitor and evaluate the situation and make recommendations or take action to integrate airspace users.

2-9. Airspace control is an integral part of risk management. Commanders at every echelon continuously assess risk of conflicts among airspace users and consequences of these conflicts, then they determine which consequences or conflicts they can accept based on an operational environment. Commanders determine what risks they can accept and include the risks in orders issued to subordinate units. When airspace conflicts arise between different airspace users or when users exceed a commander's risk guidance, the airspace element attempts to integrate the requirements by modifying planned airspace use without degrading the mission effectiveness of any airspace user. If airspace elements cannot resolve an airspace conflict without degrading the mission effectiveness of an airspace user or if the risk still exceeds risk guidance, airspace elements seek a decision from the operations staff officer (S-3/G-3) or commander. When risk involves forces not under tactical control of that commander, airspace elements share the risk assessment with affected component commanders, time permitting. Appendix A addresses risk considerations for airspace control.

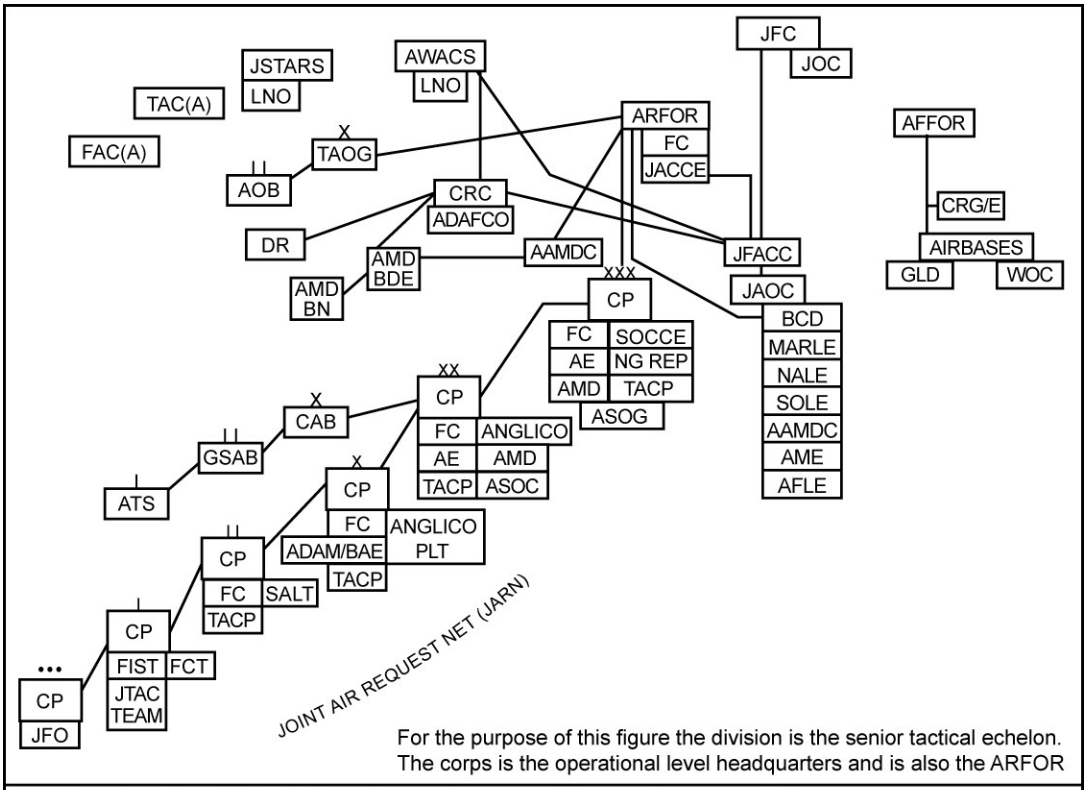
2-10. Near-real-time airspace control requires continuous assessment. Airspace elements continually monitor all airspace users to support their operations and those transiting through the airspace over their ground AOs. This continuous situational awareness ensures that commanders can react to any situation requiring immediate use of airspace, such as immediate fires or close air support (CAS) missions, unplanned unmanned aircraft system launch, or diversion of aviation assets in near-real-time.

ARMY AIR-GROUND SYSTEM

2-11. AAGS is used to coordinate Army airspace requirements. The AAGS, a component of theater air-ground system, provides for interface between Army and air support agencies of other Services in the planning, preparation, execution, and assessment of airspace use. The AAGS, comprised of elements organic at theater army level to brigade level, enhances situational awareness and understanding of all airspace users to reduce fratricide and assists in navigation and the location of airspace users.

2-12. Army components of the AAGS consist of airspace elements, fires cells, air and missile defense sections, and coordination and liaison elements embedded in Army command posts. Collectively, they coordinate and integrate airspace use—joint, coalition, nonmilitary and Army manned and unmanned aircraft

systems, directed energy, and munitions—for the echelons they are assigned. Specifically, these participants (see Figure 2-1) consist of airspace elements, fires cells, air defense airspace management/brigade aviation elements (ADAM/BAEs), an Army Air and Missile Defense Command (AAMDC), battlefield coordination detachments (BCDs), ground and reconnaissance liaison detachments, and the air defense artillery fire control officer (ADAFCO). Some participants of the TAGS, such as the tactical air control party and the air support operations center, remain under operational control of different Services but provide direct support during the conduct of operations.



AAMDC	Army Air and Missile Defense Command	FCT	firepower control team
ADAFCO	air defense artillery fire control officer	FIST	fire support team
ADAM	air defense airspace management	GLD	ground liaison detachment
AFLE	Air Force liaison element	GSAB	general support aviation battalion
AE	airspace element	JACCE	joint air component coordination element
AMD	air and missile defense	JAOC	joint air operations center
AME	air mobility element	JFACC	joint force air component commander
ANGLICO	air naval gunfire liaison company	JFC	joint force commander
AOB	airfield operations battalion	JFO	joint fires observer
ARFOR	Army forces	JOC	joint operations center
ASOC	air support operations center	JSTARS	Joint Surveillance Target Attack Radar System
ASOG	air support operations group	JTAC	joint terminal attack controller
AWACS	Airborne Warning and Control System	LNO	liaison officer
BAE	brigade aviation element	MARLE	Marine liaison element
BCD	battlefield coordination detachment	NALE	naval and amphibious liaison element
BDE	brigade	NG REP	naval gunfire representative
BN	battalion	SALT	supporting arms liaison team
CAB	combat aviation brigade	SOCCE	special operations command and control element
CP	command post	SOLE	special operations liaison element
CRC	control and reporting center	TAC (A)	tactical air coordinator (airborne)
CRG/E	contingency response group/element	TACP	tactical air control party
DR	deployed radar	TAOG	theater airfield operations group
FAC (A)	forward air controller (airborne)	WOC	wing operations center (USAF)
FC	fires cell		

Figure 2-1. Army air-ground system with other key theater air-ground system components

AIRSPACE RESPONSIBILITIES BY ECHELON AND ROLE

2-13. Airspace elements are organic to Army brigades and higher. Corps and division airspace elements are the same and are usually located in the forward command posts. Brigade Combat Teams, division artilleries, and field artillery brigades contain an airspace element referred to as an ADAM/BAE. Combat aviation brigades (CAB), and maneuver enhancement brigades contain an air defense airspace management ADAM. Sustainment brigades have no airspace control staff personnel. Sustainment brigades often occupy terrain in a maneuver brigade's area of operation. Any airspace requirements the sustainment brigade has are integrated with the requirements of the unit to which airspace control has been delegated. These airspace elements integrate brigade airspace, including air and missile defense (AMD) and aviation functions. Each of these elements coordinates with higher, subordinate, and adjacent elements to maximize the effectiveness of airspace control.

2-14. The airspace element also manages the airspace control working group. A *working group* is a grouping of predetermined staff representatives who meet to provide analysis, coordinate, and provide recommendations for a particular purpose or function (FM 6-0). For airspace control, the airspace control working group facilitates and synchronizes contributions from all the elements that perform the airspace collective tasks (see table E-2). The airspace control working group is led by the airspace control officer, warrant officer, or senior non-commissioned officer in the airspace element and typically consists of an air liaison officer (ALO) and representatives from: the airspace element, aviation element, AMD element, fires cell, tactical air control party, unmanned aircraft systems element, and other staff sections as required. Organizations without organic airspace elements accomplish airspace control through their airspace control working group.

THEATER ARMY

2-15. The theater army retains responsibility for contingency planning and coordination. This includes developing and maintaining operation and contingency plans while updating regionally focused intelligence estimates and supporting plans to a geographic combatant commander's theater campaign plan. In terms of airspace, the theater army primarily establishes airspace policy and standards and provides the Army's airspace requirements developed into operation plans and contingency plans. The theater army contingency command post has airspace, aviation, and air and missile defense elements roughly equivalent to a brigade combat team's (BCT's) ADAM/BAE. The contingency command post has the airspace control capability to support small, short-duration contingencies. As a joint operations area and subsequent Army operating forces are established, airspace control responsibilities transition to the operational Army force headquarters. As such, the operational Army force then provides the Army's input into the JFC's ACP and order as well as special instructions.

2-16. An operational Army force is the Army component headquarters for a joint task force (JTF) or a joint and multinational force. It consists of the senior Army headquarters and its commander (when not designated as the joint force commander) and all Army forces that the combatant commander subordinates to the JTF or places under the control of a multinational force commander. The senior Army headquarters identifies requirements and establishes priorities of support for Army forces within the operational area.

FIRE SUPPORT

2-17. The theater army fires cell plans, coordinates, integrates, and synchronizes the employment and assessment of all strategic theater fires to support current and future theater operations.

Army Air and Missile Defense

2-18. Army air and missile defense commands (AAMDCs) are placed under operational control (OPCON) to the joint force land component commander (JFLCC) or operational Army force and in direct support of the AADC for military operations. Other Army air defense artillery units in the area of responsibility are normally assigned, attached, or OPCON to the AAMDC. The JFC establishes AMD priorities, allocates forces, and apportions air power. The JFC typically assigns overall responsibility for counterair and airspace control to the JFACC and responsibility for defensive counterair operations to the AADC. The AADC oversees coordination with joint and multinational partners to develop procedures for a combined theater air

and missile defense (TAMD) plan. Typically, the AADC has the preponderance of AMD capabilities in theater and the ability to provide joint command and control.

2-19. The AAMDC has overall responsibility for planning Army AMD operations supporting the JFC. The AAMDC task organizes and assigns missions to the subordinate ADA brigades once planning is complete. The AAMDC has dedicated liaison teams that can deploy to liaise with major theater and Army forces elements (such as JFACC, JFLCC, joint special operations task force, and BCD) to facilitate and integrate Army forces AMD planning and operations. In some cases, the AAMDC conducts split-based operations that preclude them from being in theater. If the AAMDC is not located in theater, the responsibility for planning falls to the highest echelon ADA organization in the theater as well as for providing liaisons to the JFLCC, BCD, and AADC. FM 3-01, ATP 3-01.7, and ATP 3-01.94 provide a more in-depth explanation of the command and support relationships for theater AMD.

Air Traffic Service

2-20. Army air traffic service (ATS) units control airspace necessary to support airfield operations and can operate a fully instrumented airfield with control tower and airport surveillance and precision approach radar capabilities. ATS units are organic to either the CAB or the theater airfield operations group. Airfield operations battalions provide additional ATS forces that support theater-level requirements. One theater airfield operations group can support three theater airfields and operate from a single base or conduct split-based operations in multiple locations within the theater AO. These units establish and operate airfields as needed in the theater AO. The theater airfield operations group consists of an ATS standardization element that provides oversight, technical expertise, standardization to Army airfields at theater level and quality assurance for training and certification of controllers and ATS maintenance personnel.

Coordination and Liaison Elements

2-21. The JFACC establishes one or more joint air component coordination elements (JACCEs). JACCEs co-locate with the joint force commander's headquarters and other component commanders' headquarters. Such physical locations enable the JFACC to integrate air and space operations with component operations and the JTF headquarters to better integrate air and space operations within the overall joint force. When established, these elements act as the JFACC's primary representatives to the respective commanders and facilitate interaction among the respective staffs. The JACCE facilitates integration by exchanging current intelligence, operational data, and support requirements. It also aids integration by coordinating JFACC requirements for airspace coordinating measures (ACMs), joint fire support coordination measures, CAS, air mobility, and space requirements. As such, the JACCE is a liaison element, not a command and control node and thus, the JACCE normally has no authority to direct or employ forces. The makeup of the JACCE depends on the scope of the operation and the size of the staff with whom they will liaise. If the JACCE performs liaison duties for the commander, Air Force forces and JFACC staff, then it tailors the duties with the expertise necessary to perform effectively. Element expertise includes plans, operations, intelligence, airspace management, logistics, space, and air mobility, as needed. The JACCE also communicates the component commander's decisions and interests to the JFACC. However, the JACCE does not replace, replicate, or circumvent normal request mechanisms already in place in the component or JTF staffs, nor supplant normal planning performed by the Army operations center and Air Force forces staff. The JACCE director is the JFACC's personal and official representative.

2-22. As the Army liaison to the JFACC, the BCD is located in the joint air operations center (JAOC). The Army Service component commander provides the BCD as a liaison element to the Service component commander designated as the JFACC. The BCD personnel work with their counterparts in the JAOC to facilitate planning, coordination, and execution of joint air-ground in support of Army operations (see FM 3-94, FM 3-09, and ATP 3-09.13). BCD participates in airspace coordination by ensuring that—

- The JFACC understands the operational Army commander's intent, priorities, and objectives.
- BCD facilitates the exchange of operational and intelligence data between the air and ground component commanders.
- Process pre-planned Army airspace coordinating measure request (ACMREQ) with the appropriate JAOC elements.

- The air tasking order (ATO) accurately reflects scheduled Army aircraft and fire missions and ensures Army aircraft have valid identification friend or foe (IFF) or selective identification feature codes on the ATO.
- Ensure the airspace coordinating order identifies airspace requirements for the conduct of operations.
- Disseminate changes to theater-wide air defense warnings, weapons control status, rules of engagement, and aircraft identification standards among the JAOC, Army force headquarters, and senior land-based air and missile defense headquarters.
- Assist with informing other agencies changes to fire support coordination measures that impact joint operations such as the fire support coordination line.
- Coordinate the development of the airspace control plan on behalf of the ARFOR as directed.
- Maintains capability to digitally exchange information between the ARFOR and the JAOC.

2-23. The air defense artillery fire control officer provides a single point of contact between Army AMD fire direction centers and the regional or sector air defense commander who typically locates with the control and reporting center (CRC). However, based on theater requirements, these officers co-locate at the tactical air operations center, Air Electronic Guidance Information System, or Airborne Warning and Control System (AWACS). These officers advise and assist the controlling authority with integrating Army AMD capabilities into that part of the integrated air defense system. They identify and deconflict air tracks; provide early warning and cueing information to air and missile defense units, target weapons paring, and rapid engagement of targets; assist in airspace deconfliction between AMD fire and aircraft; and send engagement orders to AMD units.

CORPS AND DIVISION LEVELS

2-24. The corps headquarters oversees airspace control policy and standardization of tactics, techniques, and procedures throughout the corps AO. The senior Army airspace element (either corps or division depending on the force structure deployed) coordinates with the BCD's airspace section to ensure the joint airspace policies and documents incorporate the Army airspace priorities and requirements.

2-25. The corps and division airspace elements are designed to execute airspace responsibilities when a headquarters serves as an intermediate tactical headquarters, an operational Army force, a joint force land component headquarters or a JTF headquarters. Airspace element personnel integrate airspace operations with the functional cells and with the integrating cells. The airspace element also coordinates with the tactical air control party (TACP) and the air support operations center (ASOC) co-located with the headquarters.

2-26. As the airspace functional lead for the corps and division staff, the airspace element develops standard operating procedures and airspace control annexes that help standardize airspace control operations among subordinate units. These procedures and annexes ensure consistency with joint airspace procedures, the theater ACP, aeronautical information publications, and associated plans and orders. To support the corps and division mission, airspace elements in the main command post—

- Provide airspace control expertise for the commander.
- Monitor joint airspace operations.
- Plan and update input to the joint ACP.
- Integrate the airspace control architecture into the joint airspace control architecture.
- Develop the airspace control architecture to support plans.
- Draft all airspace control input for operation orders, operation plans, appendices, and estimates.
- Plan and request ACMs.
- Deconflict airspace through the appropriate authority.
- Coordinate with the movement and maneuver (for aviation), intelligence (for information collection), and fires and protection (for air and missile defense) cells.
- Provide ATS expertise to the headquarters.

2-27. The corps can function as a tactical headquarters subordinate to a joint force land component or JTF. In this case, the airspace element provides airspace requirements to the higher headquarters' airspace section

for integration into its airspace plan (see paragraph 3-34). This integration applies to the next ACO and the higher headquarters' airspace control appendix.

2-28. Normally the corps headquarters delegates airspace control to subordinate divisions within their respective AOs. Corps headquarters may also authorize direct liaison between subordinate divisions and other theater air-ground system airspace control nodes provided by other Services. These entities include United States Air Force (USAF) CRCs and AWACS, Marine Corps direct air support center and tactical air operations center, and other airspace control entities for rapid resolution of airspace issues. For headquarters subordinate to the corps which may be attached, OPCON, or under tactical control of subordinate BCTs or for other brigades assigned their own AO, the corps may delegate control over Army airspace users within the respective AOs. In these instances, the corps retains responsibility for integrating airspace users. The corps integrates all airspace requirements for corps BCTs and other brigades not assigned an AO. The corps airspace element retains responsibility for airspace control over portions of the AO not assigned to subordinate units.

2-29. The corps may have OPCON of a Marine air-ground task force (MAGTF). A MAGTF integration with the corps airspace element depends on the size and capabilities of the MAGTF. The MAGTF's aviation combat element includes Marine air command and control system capabilities tailored for the size of the aviation combat element. Smaller MAGTFs, a Marine expeditionary brigade with a regimental-based ground combat element and a composite group-based aviation combat element (with unmanned aircraft systems) may integrate in a similar manner with BCTs. Large MAGTFs bring the full joint capability to control airspace over the MAGTF AO. Large MAGTFs include a division-based ground combat element and wing-based aviation combat element with Marine rotary- and fixed- wing aviation as well as a robust Marine air command and control system. In this case, the MAGTF requires authorized direct liaison to coordinate airspace and air operations directly with the JAOC.

2-30. The corps and division headquarters provide airspace control to support multinational forces under OPCON to the corps if needed. If these forces lack airspace control capabilities, they require assistance from the corps airspace element. They receive support similar to Army functional brigades working directly for the corps. See paragraph 2-42.

2-31. The division airspace element oversees airspace control for all of the division's assigned airspace, regardless of whether the division AO has been further assigned to subordinate brigades. When a division allocates part of its AO to a subordinate brigade, it delegates some airspace management responsibilities too. However, the division airspace element still integrates airspace users over the entire division AO. If the division has an unusually large AO or if the division AO is noncontiguous, then it can delegate more airspace control responsibilities to subordinate units. Normally, delegation of airspace control for unified action partner airspace users requires augmentation of the brigade with ATS elements from the combat aviation brigade.

Fires Cell

2-32. The fires cell is responsible for targeting coordination and for synchronizing fires delivered on surface targets by fire support means under the control of or in support of the corps or division. This cell coordinates and deconflicts fire support coordination measures (FSCMs) with ACMs through close interface with ADAM/BAE and airspace elements, the ASOC, and the TACP. The airspace element works with the fires cell to integrate FSCMs with the unit airspace plan. Although the airspace element reviews and integrates the fire support overlay with other airspace requirements, FSCMs are normally sent to higher, lower, and adjacent headquarters through fire support channels. In some cases, both the fires cell and the airspace element send related control or coordination measures through their respective channels. The airspace element and the fires cell ensure the standard operating procedures and the airspace control appendices address the procedures for forwarding FSCMs and associated ACMs through appropriate coordination channels. Other complex control measures—such as kill boxes, counterfire restricted operations zones, and airspace coordination areas—also require this parallel teamwork. The airspace element and the fires cell need to review the ACO to ensure that ACMs avoid unnecessarily interfering with fires and that the ACMs are in a format that the fires digital information systems can process. If a conflict exists between the fire support plan and the ACO, the airspace element coordinates with the higher airspace elements to correct or modify the appropriate ACM. As Army rocket and missile based fires continue to increase in range and altitude, effective integration of fires and

other airspace users must occur during the planning and preparation phase in order to ensure efficient use of airspace.

Air and Missile Defense Element

2-33. The AMD element is the lead staff element for integrating the joint tactical data informational link network for the employment of Sentinel air defense radars and for the production of the air picture. See Appendix C for more details. The airspace element links with the AMD element for air track data. The airspace element depends on the AMD element for integrating the airspace element's joint data network systems. In turn, these airspace element systems provide backup support to the AMD element. The airspace element ensures that AMD airspace requirements integrate with the corps and division airspace plans.

Coordination and Liaison Elements

2-34. Some elements of the theater air-ground system are Air Force liaisons provided to the division, the corps, or operational Army forces. These liaisons include the ASOC, TACP, and air mobility liaison officer. Air Force liaisons function as a single entity in planning, coordinating, deconflicting, and integrating air support operations with ground elements. These liaisons work with Army airspace elements, fires cells, AMD elements, and aviation elements of the corps and division command posts. They also coordinate with liaison elements such as the BCD, AMD coordinator for the operational Army forces, and officers.

2-35. Ground-based liaison elements of the theater air-ground system subordinate to the JAOC provide similar capabilities as airborne elements but with reduced range, flexibility, and mobility. However, ground-based liaison elements do not depend on high-value assets for continuous operations. Additionally, they offer an important interface between the theater air-ground system and ground-based air defense activities. Ground-based liaison elements of the theater air-ground system include CRCs, tactical air operations centers (TAOCs), ASOCs, direct air support center (DASCs), and TACPs, and air mobility liaison officers.

2-36. The ASOC is the element responsible for planning, coordination, control, and execution of air operations that directly support the Army's ground combat forces. Each ASOC reports to the JAOC. The senior air director maintains the on-scene OPCON of the ASOC. The ASOC is directly subordinate to the JAOC and coordinates air operations directly supporting Army forces. Air operations include CAS, air interdiction, intra theater airlift, joint intelligence, surveillance, and reconnaissance, suppression of enemy air defenses, and combat search and rescue. The ASOC processes immediate requests submitted through TACP channels, utilizing the joint air request net (JARN), while synchronizing efforts with Army fires elements. While Army airspace elements normally control air assets organic to maneuver commanders, the ASOC normally controls all joint air allocated from the JFACC to support the Army component.

2-37. . The USAF TACPs are subordinate to the ASOC and are the single points of direct USAF interaction with supported ground combat units. Each maneuver battalion, brigade, division, and corps headquarters will have an aligned TACP. Staffed with ALOs and other terminal attack controllers, TACPs perform liaison and control functions appropriate to the level of combat maneuver force supported. Only joint terminal attack controllers (JTACs) or forward air controllers (airborne) (FAC[A]s) personnel have the authorization to perform terminal attack control of CAS aircraft during operations (combat and peacetime) within proximity of their supported ground combat units. For airspace use, TACPs integrate with fires cells and the Army airspace elements. TACPs assist ground maneuver units in the planning and coordinating of FSCMs and ACMs needed to integrate air and ground operations. TACPs assist the ASOC for tactical control of CAS and FAC (A) aircraft transiting from the ASOC to the JTAC contact point.

2-38. The air mobility liaison officer is a USAF officer specially trained to implement the theater air control system and to control airlift assets engaging in combat tactics such as airdrop. Air mobility officers are highly qualified, rated air mobility officers with experience in combat tactics and assigned duties supporting Army and Marine Corps units.

JOINT AIR GROUND INTEGRATION CENTER (JAGIC)

2-39. Beginning in fiscal year 2011, the United States Air Force began aligning its ASOC capabilities with each active duty Army division. The Air National Guard will have two non-aligned ASOCs to support Army National Guard divisions. Aligning ASOCs provides an effective method to command and control close air support, intelligence, surveillance, and reconnaissance, as well as dynamic and deliberate interdiction operations and to provide an effective means to coordinate suppression of enemy air defenses in division-assigned airspace. An effective technique to integrate the ASOC within the division command post is to form a joint air ground integration center (JAGIC). The JAGIC is a method to effectively organize personnel and equipment to build personal relationships and teamwork between Soldiers and Airmen. This is accomplished through the physical integration of ASOCs and tactical air control parties with division fires, airspace, air and missile defense, and aviation personnel and functions within the current operations integration cell (COIC). This gives the division a powerful joint team capable of collaborative fires while maximizing the use of airspace.

2-40. All JAGIC functions are in support of COIC. Specific functions of the JAGIC include fires, airspace control, interdiction coordination, friendly force identification, and information collection. These functions are fully described in ATP 3-91.1, The Joint Air Ground Integration Center.

2-41. The JAGIC provides the division with the capability to control joint airspace delegated by the ACA in accordance with the airspace control plan (ACP) and the airspace control order (ACO). The JAGIC's collocation of division and ASOC airspace personnel enables shared understanding and collaborative integration of airspace users. The JAGIC's control of airspace allows the division to effectively integrate fires and airspace control during operations with appropriate flexible and timely actions.

BRIGADE LEVEL

2-42. Brigades are responsible for airspace management of Army airspace users within their AO. The authority of the brigade over unified action partner airspace users varies and is specified in the higher headquarters airspace control appendix. All Army airspace users transiting a brigade AO coordinate with the brigade responsible for the AO they are transiting. The division only integrates Army airspace use between brigades if adjudication between brigades is necessary. Brigades normally contact the JAGIC to coordinate with joint airspace elements controlling airspace over the brigade (CRC, AWACS, and TAOC). In some situations, for example, very lightly used airspace or airspace with few unified action partner airspace users, the division may delegate this authority.

2-43. BCTs are not normally delegated control of joint airspace as they lack trained and equipped controllers. Rather BCTs are responsible for integrating airspace users supporting BCT air ground operations. Sometimes, the brigade requests approval to control a volume of airspace such as a high-density airspace control zone (HIDACZ). However, for a brigade to control airspace for an extended period, it needs to augment the ADAM/BAE with assets from the ATS company organic to the CAB. See paragraph 2-51 for more details on ATS assets available to the CAB and brigade.

2-44. Functional brigades without an organic ADAM/BAE still retain brigade responsibilities for some airspace tasks (see appendix E) but rely on their higher headquarters for complete airspace control. If a functional brigade falls under the control of a support brigade (for example, a military police brigade under a maneuver enhancement brigade), the support brigade integrates the functional brigade airspace requirements. If the functional brigade falls directly under the control of a corps or division, then the corps or division airspace element integrates the brigade airspace requirements.

2-45. Several multifunctional support brigades such as the combat aviation brigade or field artillery brigade do not routinely control AOs but conduct operations throughout the corps AO. Normally these brigades coordinate their airspace use with the divisions and brigades whose AOs they will transit (or with corps airspace elements for portions of the corps AO unassigned to a division or brigade). Airspace control becomes more complex when a corps tasks these brigades to accomplish a mission (such as Army aviation attacks or fires strikes) that affects airspace use by other divisions or brigades. The brigade conducting the operation is the lead airspace control planner with the higher headquarters airspace element providing planning and airspace control support to the brigade's ADAM element. The division or corps airspace element checks that it adjusts the airspace plan to account for the brigade commander's priorities and concept of operations.

Air Defense Airspace Management/Brigade Aviation Element

2-46. All brigade combat teams and multifunctional brigades (except sustainment) have an organic ADAM or ADAM/BAE. This staff element is composed of air defense artillery and aviation personnel and performs the airspace management, AMD, and aviation functions for the brigade. It also provides added capability into the theater air-ground system at the tactical level.

2-47. Compared to an ADAM, an ADAM/BAE has additional aviation personnel and a larger aviation planning capability. Members of the brigade staff consist of key members of the airspace control working group—fires cell TACP and the ADAM/BAE. The brigade aviation officer is the airspace control officer for the brigade S-3.

2-48. The ADAM/BAE supports the brigade commander by providing situational understanding of the airspace and early warning via connectivity with airspace users as well as with unified action partner's sensors and command networks. This element also continuously plans and executes airspace management requirements and integrates Army AMD and aviation requirements consistent with the brigade commander's intent, priorities, and acceptable risk levels.

2-49. The ADAM and ADAM/BAE continuously plan for, control, and monitor the operations of all airspace users to support their operations and those transiting through the air over their ground AOs. This continuous situational understanding is critical to ensure that the brigade can react to any situation requiring immediate use of airspace, such as immediate fires (offensive and defensive), CAS missions, unplanned unmanned aircraft system launches, or a diversion of aviation assets in real time. Table 2-1 illustrates ADAM/BAE functions. Note that ADAM capabilities resident in a CAB and maneuver enhancement brigade do not have an aviation operations component and therefore have a very limited capability to perform brigade aviation element (BAE) functions. The level of effort spent on core tasks (ADA tasks by the ADAM and aviation operations by the BAE) affect how much effort can be provided to airspace control. Recent stability operations were in a low air defense threat environment and permitted a significant level of effort to BCT airspace control. Future operations may face a significant unmanned aircraft system (UAS) air threat combined with high supporting Army aviation operations. While airspace control tasks will still be accomplished, the BCT will increasingly rely on the division JAGIC to support airspace control.

Table 2-1. Air defense airspace management and brigade aviation element functions

ADAM	*SHARED*	*BAE*
• Plans and synchronizes air and missile defense operations with the concept of operations. • Produces the integrated air picture. • Plans low-level sensor employment. • Develops and maintains air defense artillery overlay to include unit locations, weapons control status, and weapon system coverage.	• Plans for airspace use and executes near-real-time control during execution and monitors operations of airspace users. • Analyzes airspace use to determine and resolve conflicts. • Reviews immediate airspace coordinating measures requests for conflicts with current operations. • Requests, maintains, and disseminates joint airspace coordinating measures. • Develops and coordinates airspace control appendix.	• Plans and synchronizes aviation with the concept of operations. • Advises and plans the use of unmanned aircraft systems, reconnaissance, attack, assault, air movement, sustainment, and medical evacuation. • Standardizes brigade combat team unmanned aircraft system employment.
Legend ADAM air defense airspace management BAE brigade aviation element		

Fires Cell

2-50. The fires cell at brigade level is responsible for coordinating activities and systems that provide the collective and coordinated use of Army indirect fires and joint fires through the targeting process. The fires cell makes every effort to ensure that FSCMs and ACMs are coordinated and deconflicted through close interface with ADAM/BAE and the TACP. If this is not possible, the fires cell formulates and prepares to execute acceptable alternatives.

Air Traffic Service

2-51. Each CAB has an organic ATS company as part of the general support aviation battalion. The ATS company establishes and operates airfields to support CAB operations. The ATS company contains a terminal control platoon and an airspace information services platoon. The terminal control platoon can operate a fully instrumented airfield with a control tower and airport surveillance radar and precision approach radar capabilities. It also has communications resources available to facilitate the control of the local airspace necessary to support airfield operations. The airspace information services platoon, with two tactical aviation control teams each, can control up to two tactical landing sites (rotary-wing, fixed-wing, or both) while the airspace information center provides enroute flight management support.

Coordination and Liaison Elements

2-52. The TACP helps maneuver brigades integrate air-ground operations. The TACP coordinates ACMs and FSCMs with the ADAM/BAE, fires cells, and the ASOC during the accomplishment of CAS missions to support ground operations. This coordination includes assisting the ASOC and JTAC for tactical control of CAS and — FAC (A) — aircraft transitioning to the JTAC contact point.

BATTALION LEVEL

2-53. The operations section plans and coordinates airspace requirements for the battalion. The major actions include:

- Establishing and leading the airspace control working group.
- Establishing staff responsibility for airspace management from personnel assigned to the S-3 section.
- Receiving and disseminating airspace coordinating measures requests for approvals, changes, and disapprovals for small unmanned aircraft system.
- Reviewing and resolving planned and immediate airspace coordinating measures requests.
- Monitoring and analyzing aviation, small unmanned aircraft system, lethal miniature aerial munition systems, field artillery, air defense, and maneuver operations to determine and resolve conflicts.
- Submitting to ADAM/BAE all planned and immediate airspace coordinating measures requests including small unmanned aircraft systems (see Appendix C).
- Immediately communicating any deviations from pre-planned missions to the ADAM/BAE or higher headquarters.
- Informing airspace users at each echelon of any communication loss during operations.
- Tracking and reporting aviation, field artillery, air defense, small unmanned aircraft systems, lethal miniature aerial munition systems, and personnel status.
- Monitoring rotary- and fixed-wing aircraft in the battalion AO to aid in deconflicting small unmanned aircraft systems, lethal miniature aerial munition systems, and other air traffic.
- Managing separation and frequencies of battalion and below small unmanned aircraft system operations.

Fires Cell

2-54. The fire support officer and the fires cell are responsible for planning, coordinating, and synchronizing fire support operations to include joint fire support. The major actions of the fires cell include the following:

- Planning, controlling, and synchronizing all fire support.
- Establishing priorities and allocating available fire support resources to support the battalion.
- Participating in and supervising the routine activity and coordination of the targeting process within the main command post.
- Coordinating with the ADAM/BAE regarding airspace clearance, artillery, and mortar firing unit locations as well as changes to FSCMs, and ACMs and aviation support.
- Coordinating air support through the USAF TACP.
- Coordinating suppression of enemy air defenses.

Coordination and Liaison Elements

2-55. The TACP consists of the ALOs and two JTACs. The TACP has two primary missions: advise ground commanders on the capabilities and limitations of airpower and provide the primary terminal attack control of CAS to support ground forces. At the battalion level, the TACP provides the primary link for commanders to joint CAS assets made available to support the battalion's mission. Depending on the tactical situation, terminal attack control teams consisting of one JTAC, may co-locate with each maneuver company.

COMPANY OR TROOP LEVEL

2-56. The company commander is responsible for ensuring that airspace users (organic or in support) coordinate and share information concerning company airspace use by aircraft and fires. Airspace control information that should be shared with battalion and the fire support team (to include JFO's and JTACs) includes use of small unmanned aircraft systems, micro UAS, and lethal miniature aerial munition systems. If there is time to request that the BCT ADAM/BAE build ACMs for planned airspace use, the use of ACMs will simplify air ground operations. However, if the company must employ its systems for immediate combat missions (and is authorized by standard operating procedures and rules of engagement), then as a minimum, the company should notify the battalion ADAM/BAE so it may better synchronize airspace use.

2-57. The field artillery fire support personnel (fires cells and fire support teams) are organic to the BCT's field artillery battalion. However, these cells and teams are typically attached or fall under OPCON to maneuver battalions, companies or troops for tactical operations. Fire support teams provide fire support coordination, precision targeting, and assessment capabilities. These teams have responsibility for planning and coordinating all supporting fires including mortars, field artillery, naval surface fire support, and CAS integration through close coordination with JTACs.

2-58. A *joint fires observer* is a trained service member who can request, adjust, and control surface-to-surface fires, provide targeting information in support of Type 2 and 3 close air support terminal attack control, and perform autonomous terminal guidance operations (JP 3-09.3). In type 2 control, the observer can see either target or attacking aircraft. In type 3 control, the observer can see neither target nor attacking aircraft. The joint fires observer also performs autonomous terminal guidance operations. Joint fires observers are typically members of a fire support team. A joint fires observer adds a joint warfighting capability without circumventing the need for qualified JTACs. These observers provide the capability to exploit those opportunities that exist in the corps AO where a trained observer could be used to efficiently support air-to-surface fires and facilitate targeting for the JTAC.

2-59. The JTAC, when employed by TACP at the company or troop level, directs the action of or controls aircraft engaged in CAS and other offensive air operations. The JTAC also provides the ground commander with recommendations on the use of CAS and its integration with ground maneuver. The JTAC and fire support team or joint fires observer may develop informal ACAs to coordinate attacking aircraft and surface fires.