ATP 3-09.23

Field Artillery Battalion Operations

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Preface

ATP 3-09.23 sets forth the doctrine pertaining to the organization, equipment, command and control, operations, and techniques for the field artillery battalion in support of a maneuver or supported commander. It establishes the responsibilities and general duties of key personnel by focusing on techniques of how the unit fights. This document incorporates procedures outlined for all field artillery battalions.

The principal audience for ATP 3-09.23 is all members of the artillery community. This includes field artillery Soldiers and leaders. Commanders and staffs of Army headquarters serving as joint task force or multinational headquarters will also refer to applicable joint or multinational doctrine concerning the range of military operations and joint or multinational forces. Trainers and educators throughout the Army will also use this publication.

This publication describes the field artillery battalion to include:

- Doctrinal guidance for commanders, staffs, and subordinate personnel that are responsible for planning, preparing, executing, and assessing field artillery operations.
- Operations for the field artillery battalions assigned, attached, or under the operational control of the corps, division, brigade combat team, division artillery, field artillery brigade, or multidomain task force. The techniques described herein are flexible guidelines.

Commanders, staffs, and subordinates must ensure that their decisions and actions comply with applicable U.S., international, and in some cases host-nation laws and regulations. Commanders at all levels will ensure that their Soldiers operate in accordance with the law of armed conflict and applicable rules of engagement. (See FM 6-27)

ATP 3-09.23 implements North Atlantic Treaty Organization Standard Agreement (STANAG) 2934.

ATP 3-09.23 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which ATP 3-09.23 is the proponent publication (the authority) are marked with an asterisk (*) in the glossary. Terms for which ATP 3-09.23 is the proponent publication are bold faced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

ATP 3-09.23 applies to the Active Army, Army National Guard/Army National Guard of the United States and United States Army Reserve unless otherwise stated.

The proponent of ATP 3-09.23 is the Fires Center of Excellence. The preparing agency is the United States Army Field Artillery School. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Directorate of Training and Doctrine, ATTN: ATSF-DD (ATP 3-09.23), 700 McNair Avenue, Suite 117, OK 73505-4456; or by e-mail to usarmy.sill.fcoe.mbx.dotd-doctrine-inbox@army.mil; or submit an electronic DA Form 2028.

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Introduction

The techniques herein build on the collective knowledge and experience gained through operations, numerous exercises, and the deliberate process of informed reasoning. These techniques are rooted in the fire's principles identified in ADP 3-19 and FM 3-09 and accommodate force design changes, new technologies, and diverse threats.

ATP 3-09.23 has eight chapters and three appendices.

Chapter 1 provides the battalion organizational framework for the field artillery battalion.

Chapter 2 describes field artillery battalion command and control.

Chapter 3 provides an overview of the field artillery battalion planning process.

Chapter 4 describes internal and external information collection support to the detect function.

Chapter 5 focuses on the execution of attack with fires.

Chapter 6 discusses how a field artillery battalion operates.

Chapter 7 describes the sustainment warfighting function as it relates to the field artillery battalion.

Chapter 8 identifies the unique considerations and characteristics of the different types of field artillery battalions.

Appendix A discusses development, format, and content of a formal field artillery battalion operation order and field artillery support plan.

Appendix B provides an overview of liaison duties.

Appendix C discusses the requirement for distributed units.

Based on current doctrinal changes, no terms have been added, modified, or rescinded. The glossary contains acronyms and defined terms.

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Chapter 1

Field Artillery Battalion Organizational Framework

This chapter provides the organizational framework for the field artillery (FA) battalion. Section I describes the FA battalion organization. Section II describes the headquarters and headquarters battery (HHB). Section III lists key FA battalion personnel and responsibilities.

SECTION I – FIELD ARTILLERY BATTALION ORGANIZATION

1-1. FA battalions are organized with a HHB and two to three firing batteries. HHB and the forward support company (FSC) provide command and control (C2), administrative, and logistical support for organic and attached elements. Each firing battery has fire direction centers (FDC) and cannon or rocket sections. A FSC from the brigade support battalion (BSB) supports the FA battalion.

THE FIELD ARTILLERY BATTALION

1-2. The FA battalion suppresses, neutralizes, or destroys the enemy by cannon, rocket, and missile fires to enable the supported commander to dominate in large-scale combat operations. The FA battalion also provides counterfire against enemy mortar, cannon, and rocket elements.

1-3. The FA battalion has a specific support relationship to the supported commander. Unique characteristics of each different type of FA battalions are identified in chapter 8.

1-4. The FA cannon battalion provides indirect fire support (FS) to maneuver or supported forces on the battlefield. The FA rocket and missile battalions enable the field artillery brigade (FAB) to conduct corps level strike and division level shaping operations. The multidomain task force (MDTF) has a long-range fires battalion that provides operational, theater strategic, and strategic fires for the joint force. A command relationship is established with a senior headquarters (HQ), and a support relationship is assigned each battalion.

1-5. The security force assistance brigade (SFAB) FA battalion develops the fires capability and capacity of foreign security forces to conduct targeting, deliver fires, and integrate fires at multiple echelons within the operational environment. Advisor teams advise and train the foreign security forces in the application of indirect fires and must be prepared to support them with indirect fires through coordination of joint fire assets, if necessary. The SFAB FA battalion does not have organic cannon or rocket artillery systems and thus no firing capabilities. For more information on SFAB FA battalion operations see ATP 3-96.1.

ORGANIZATION

1-6. FA battalions are task organized based on their assigned duties and aligned with a specific brigade combat team (BCT), division artillery (DIVARTY), FAB, or a multi-domain task force. The different types of battalions are:

- Composite (105 millimeter [mm]) and 155mm towed).
- Composite missile battalion (long-range fires battalion).
- 155mm towed.
- 155mm self-propelled (SP).
- High mobility artillery rocket system (HIMARS).
- Multiple launch rocket system (MLRS).
- Army National Guard (ARNG) Composite battalion.
- ARNG 155mm towed cannon.
- ARNG 155mm SP cannon.
- ARNG HIMARS (2x8) and (3x9).
- ARNG MLRS (2x8) and (3x9).
- Security Force Assistance Brigade Field Artillery Battalion (no firing capabilities).

1-7. FA battalions are attached, assigned, or organic to BCTs, DIVARTYs, FABs, and multidomain task forces. All FA battalions have an HHB to provide C2 and administrative support. A FSC provides logistical support. The battalion is organized with two to three firing batteries. The battalion provides responsive and accurate fires to the supported commander. See figure 1-1 for an example of a generic FA battalion.

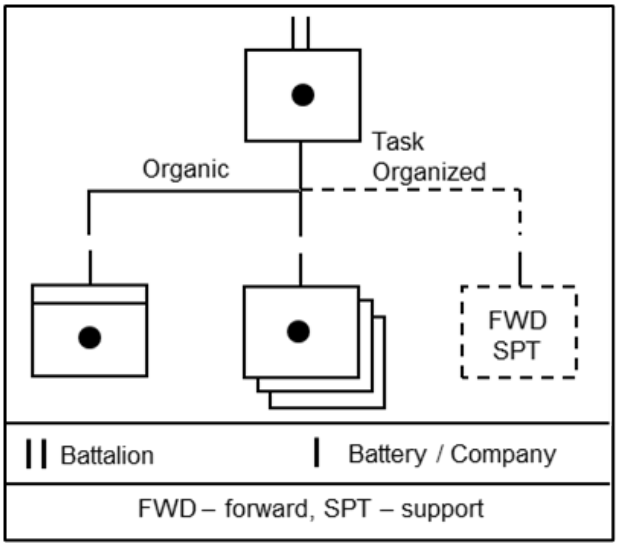


Figure 1-1. Generic field artillery battalion example

SECTION II – HEADQUARTERS AND HEADQUARTERS BATTERY ORGANIZATION

1-8. The HHB is organic to the battalion and is organized and equipped to coordinate administrative, logistical, maintenance, and communications support for the battalion HQ and firing batteries. The HHB provides command, control, administrative, and service support for organic and attached elements. It also procures, distributes, administers, and coordinates supply transactions for all classes of supply, and coordinates unit maintenance support from the FSC and higher-level sustainment organizations.

1-9. The HHB operates as a tactical and administrative HQ. The HQ element will be positioned for the most effective control of the battalion assets commensurate with the terrain, combat mission and responsiveness to the higher HQ, and supported units. The functional elements of the HHB are discussed below.

HEADQUARTERS AND HEADQUARTERS BATTERY

1-10. The HHB is configured to provide the battalion with C2. The target acquisition platoon and the fire support element (FSE) are found only in FA cannon battalions. See figure 1-2 on page 3 for an example of an HHB.

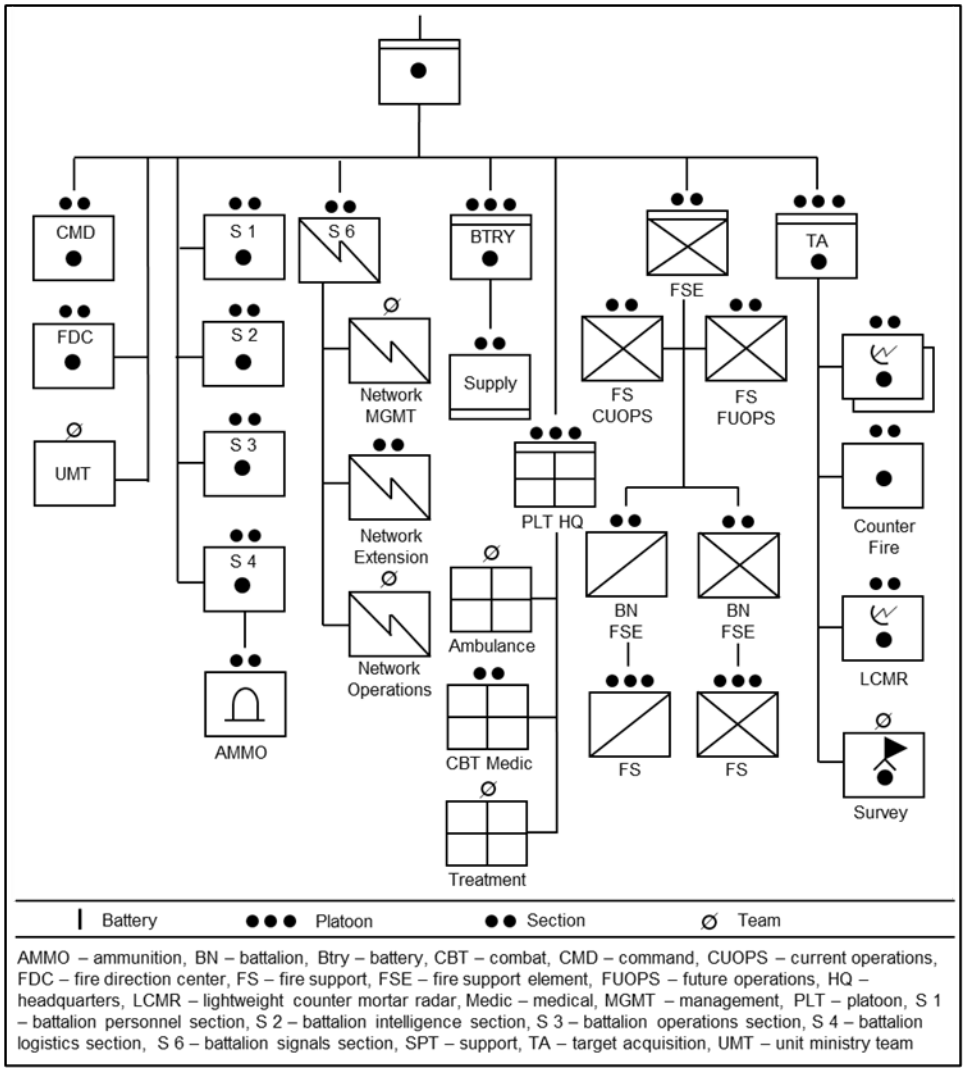


Figure 1-2. Headquarters and headquarters battery

BATTERY HEADQUARTERS

1-11. The battery HQ provides command, control, and supervision for the battery. The HQ consists of the battery commander, first sergeant (1SG), and one driver.

BATTERY SUPPLY SECTION

1-12. The supply section consists of a supply sergeant (SGT) and a supply specialist. The supply section coordinates with the battalion S-4 to obtain all classes of supplies from the FSC. The FSC provides the supply section with supplies forward with the next logistics packages, or immediately if needed.

BATTALION COMMAND SECTION

1-13. The battalion command section provides command, supervision, and control for all tactical and administrative operations of the battalion. The section consists of the battalion commander, the executive officer (XO), and the command sergeant major (CSM). The HQ controls and coordinates battalion activities.

BATTALION FIRE DIRECTION CENTER

1-14. The battalion FDC has tactical control over and provides tactical fire direction to the firing batteries. The fire direction officer (FDO) supervises the FDC. It is staffed with one senior fire control

noncommissioned Officer (NCO), one fire control NCO, one fire control sergeant (SGT), and three to five tactical data system operators dependent on the type of FA battalion.

1-15. The battalion FDC provides tactical fire planning and fire control through automated systems with manual backup and communications equipment. Specific responsibilities are as follows:

- Monitor and operate in the battalion fire direction and FS coordination nets.
- Schedule fire units for planned fires in coordination with the battalion operations staff officer, brigade fire support officer (FSO) (if applicable), reinforcing (R) or reinforced FA (as appropriate), and force field artillery HQ.
- Review the maneuver commander's attack guidance and force field artillery HQ directives and apply them to all fire mission requests.
- Ensure all battalion elements have the proper guidance and attack criteria entered into digital systems for both current and planned operations. Where applicable, this includes all FSE and requires close coordination with the brigade FSE.
- Execute planned fires as requested by force field artillery HQ, fires elements, observers, and reinforced units.
- Coordinate fire mission processing procedures (digital and voice) with FSEs, force field artillery HQ, reinforced or R units, targeting and intelligence assets, and air defense support element (ADSE)/air ground integration element (AGIE) as appropriate (formerly known as the ADAM/BAE). This includes digital fire mission routing and primary computer system intervention rules. For airspace clearance, this includes digital or voice coordination requests and munition flight paths.
- Respond to immediate fire requests in the priority established by the supported maneuver commander's attack criteria.
- Ensure the battalion meets the five requirements for accurate predicted fires:
  - Accurate target location and size.
  - Accurate firing unit locations.
  - Accurate weapons and munitions information.
  - Accurate meteorological information.
  - Accurate computational procedures.
- Determine registration requirements in coordination with the battalion or brigade operations staff officer (S-3).
- Provide technical fire direction assistance to battery and platoon FDCs as required.
- Coordinate for technical fire direction when battery and platoon FDCs have a catastrophic loss of technical fire direction capability.
- Ensure that all fire missions comply with current fire support coordination measures (FSCM) and are deconflicted with current airspace coordinating measures (ACM).
- Assist the S-3 in monitoring ammunition expenditures. In cannon units, this includes ammunition lot management. Recommend changes to attack criteria or other tactical fire direction guidance as necessary.
- Conduct mutual support operations as required.
- Establish and practice operations in a degraded mode.
- Plan for and employ precision munitions.

BRIGADE FIRE SUPPORT ELEMENT

1-16. The brigade FSE (cannon battalions only) works closely with battalion FSEs and the fire support team (FIST) of each company. These organizations ensure that responsive and effective FS is provided to their respective maneuver or supported commanders through their main command post (CP) FSE.

1-17. The brigade FSE is organized with the FA battalion commander as the brigade fire support coordinator (FSCOORD), a brigade FSO and assistants, targeting officer, an ADSE/AGIE, an electromagnetic warfare element, and digital systems operators. The FSE may also have an Air Force tactical air control party. These personnel are all members of the targeting team.

Current Operations Cell

1-18. The current operations cell is the focal point for controlling the execution of operations. This involves assessing the current situation while regulating forces and warfighting functions in accordance with the mission, commander's intent, and concept of operations. The chief of operations or assistant S-3 leads this cell. Elements or watch officers from each staff section and liaison officers (LNO) from subordinate and adjacent units form this cell. All staff sections are represented in the current operations integrating cell either permanently or on call (ATP 6-0.5).

Future Operations Cell

1-19. The future operations cell is responsible for planning operations in the mid-range planning horizon. This cell focuses on adjustments to current operations, including the positioning or maneuvering of forces in depth that facilitate continuation of current operations. The cell consists of a core group of planners led by the future operations officer. All staff sections assist as required. (ATP 6-0.5)

Battalion Fire Support Element

1-20. Battalion FSEs in the maneuver battalions provide a FS coordination capability for battalion operations and are organized with an FSO and FS NCO, and digital systems operators. The FSE may also have an Air Force tactical air control party.

Fire Support Platoon

1-21. Company FIST HQ personnel and platoon forward observers enable effective artillery and mortar support for the maneuver force. The observers are the ears and eyes of the FA and a major source of information for FA and maneuver commanders as the observers execute assigned tasks and respond to enemy actions.

1-22. FIST is a FA team providing support to each maneuver battalion and selected units to plan and coordinate all available supporting fires, including mortars, FA, naval surface FS and close air support (CAS) integration. FISTs are assigned to the cannon FA battalion and provide the maneuver companies with FS coordination, precision targeting, assist in targeting for CAS and effects assessment capabilities.

1-23. Effective FA fires require certified observers to call for and adjust fires on located targets. Forward observers, forward air controllers, naval gunfire spotter teams, joint fires observers (JFO) and joint terminal attack controllers (JTAC) train together and work effectively as a team to request, plan, coordinate, and place accurate fires on targets that create the effects desired by the supported commander.

1-24. A *forward observer* is an individual operating with front line troops trained to adjust ground or naval gunfire and pass back battlefield information (JP 3-09). Platoon forward observers are assigned to the FIST supporting each infantry company in the BCT.

1-25. A *joint fires observer* is a certified and qualified Service member who requests, controls, and adjusts surface-to-surface fires; provides targeting information in support of close air support; and performs terminal guidance operations (JP 3-09.3). JFOs cannot perform terminal attack control of CAS missions and do not replace a qualified JTACs/forward air controller (airborne). Trained Service members will be jointly known as a JFO.

S-1 Section

1-26. The personnel staff section provides administrative and legal support and helps the battalion commander provide for the welfare of the battalion personnel. The battalion or brigade personnel staff officer (S-1) supervises the section. The section includes a senior human resources SGT, two human resources SGTs, a paralegal specialist, and four human resources specialists.

S-2 Section

1-27. The intelligence staff section processes battlefield information and coordinates information collection operations within the battalion and with the supported maneuver units and military intelligence assets. The

battalion or brigade intelligence staff officer (S-2) supervises the section, which includes a targeting officer (rocket battalion only), intelligence SGT, intelligence analyst, and tactical data system operator.

1-28. The intelligence section provides intelligence and security information and conducts FA focused intelligence preparation of the operational environment (IPOE). The section tracks and creates the priority intelligence requirements (PIR) related to FS, the commander's intent, and the mission statement. They develop the PIRs related to the battalion protection warfighting functions. The S-2 manages all attached target acquisition systems and Army, joint, and national sensor system down links under the battalion's operational control (OPCON).

1-29. The S-2 section processes and correlates targeting data to include predicting and monitoring assigned high-payoff target (HPT) locations and passes this information to the controlling FA HQ and the battalion FDC. They coordinate with the S-3 and counterfire cell to determine potential enemy position area for artillery (PAA) based on terrain during the IPOE process. The S-2 coordinates the battalion ground and air defense plans with the batteries and coordinates with battalion targeting officer to plan and execute zone coverage and cueing schedules for all attached weapons locating radars (WLR).

S-3 Section

1-30. The S-3 battalion operations staff office supervises the CP, and the operations S-3 section. The section coordinates all tactical, technical, and logistical operations and planning for the battalion. The section employs the batteries to meet the needs of the supported units. It develops warning orders, the operation order (OPORD), and fragmentary orders; maintains the tactical situation maps and overlays; and coordinates tactical movements and positioning. The section is staffed with the operations officer, operations SGT, master gunner/assistant operations SGT, chemical, biological, radiological and nuclear (CBRN) officer, two CBRN NCOs, two tactical data system operators, and a CBRN decontamination specialist.

S-4 Section

1-31. The battalion or brigade logistics staff officer (S-4) supervises the battalion S-4 section and serves as a shift leader. The section establishes the administrative and logistics operations center and coordinates the overall logistical activities of the battalion. It works closely with the operations section in monitoring the resupply of ammunition and fuel. The section includes a senior maintenance supervisor, a senior supply SGT, and four supply Specialists.

Ammunition Management Section

1-32. The battalion ammunition officer monitors the ammunition status of the battalion and manages all aspects of ammunition resupply. The section is composed of the Ammunition Officer, Ammunition SGT, and a vehicle driver.

S-6 Section

1-33. The battalion or brigade signal staff officer (S-6) is the principal staff officer for all matters concerning signal operations, automation management, network operations, communications security (COMSEC), electromagnetic spectrum management, and information security. The S-6 plans signal operations, prepares the signal annex to the OPORDs, and recommends employment of communications assets in support of operations. The section attaches support teams forward with the firing batteries. The signal section consists of the signal support systems chief, two forward signal support NCOs, one signal information service specialist, and one signal support system specialist.

Network Management Team

1-34. Network Management Team is responsible for management of the battalion local area network. The section is composed of two local area network managers. The network operations team install, operate, and maintain the CP node. The CP node provides voice and data connectivity to the Department of Defense information network-Army for information systems. The team is comprised of a senior transmissions systems operator and maintainer and one transmissions systems operator maintainer.

Network Extension

1-35. The retransmission team establishes and maintains the retransmission station, as required. Dual retransmission capability is essential to maintaining both voice and data communications over extended distances. The section is composed of the team chief and two radio retransmission operators, 1 radio retransmission supervisor, 1 team chief, 4 radio retransmission operators.

1-36. The Communication System: the Soldier Network Extension (SNE) is a Warfighter Information Network-Tactical Equipment (WIN-T) communications package for selected vehicles at the battalion and company level. The SNE provides on-the-move satellite communication connectivity to the WIN-T network and provides healing for fragmented dismounted terrestrial networks and simultaneously supports reach-back to higher echelons. The SNE provides a combat network radio gateway function, connecting tactical radio voice networks to the WIN-T network. The SNE employs active congestion control and utilizes a proxy to enhance the performance of traffic over high-delay satellite links.

Network Operations

1-37. *Department of Defense information network operations* are operations to secure, configure, operate, extend, maintain, and sustain Department of Defense cyberspace to create and preserve the confidentiality, availability, and integrity of the Department of Defense information network (JP 3-12).

1-38. The network operations and security center provide guidance to subordinate signal elements through technical channels. The network operations and security center monitor the health of the network and directs fault, configuration, accounting, performance, and security management. The network operations team consists of one senior network communications system specialist, and three additional network communications systems specialists.

Liaison Section

1-39. The liaison section consists of two liaison teams each with three personnel. They are necessary to accommodate frequent changes in support relationships, to adequately support unified action partners.

Unit Ministry Team

1-40. A unit ministry team consists of at least one Chaplain and one Religious Affairs Specialist, based on organizational requirements. Religious support facilitates the free exercise of religion, provides religious activities that support resiliency efforts to sustain soldiers, Family members and authorized civilians. The Unit ministry team advises commands on matters of religion, ethics, morals, and morale and their impact on military operations. The Chaplain Corps executes its required religious support mission through three core competencies: nurturing the living, caring for the wounded, and honoring the dead.

Target Acquisition Platoon

1-41. The target acquisition platoon (FA cannon battalion only) provides the FA battalion and the supported higher HQ with the capability to acquire threat mortar, artillery, and rocket systems and provide target intelligence and information. This provides the FA battalion an organic counterfire mission processing capability. The target acquisition platoons are organized with a platoon HQ, a counterfire operations section, a radar section, and a lightweight counter mortar radar section. The platoon HQ consists of one platoon leader and one platoon SGT. For more detailed descriptions of the target acquisition platoon refer to ATP 3-09.12.

Radar Section

1-42. The radar section consists of two WLRs. Each WLR is a highly mobile radar set that automatically detects, classifies, tracks, and locates the point of origin of projectiles fired from mortar, artillery, and rocket systems with sufficient accuracy for first round fire for effect. Each section has a section chief, radar team chief, and three WLR specialists.

Counterfire Operations Section

1-43. This section works together with the battalion intelligence officer and staff to produce targetable data. These personnel have the responsibility to perform counterfire operations and to satisfy information requirements. The section is made up of a targeting officer, a counterfire NCO, two targeting NCOs and two targeting processing specialists.

1-44. The section is responsible for processing acquisitions, sensor management and maintaining the current maintenance status of the WLRs during operations. The section assists with integrating and synchronizing the WLR assets in accordance with the commander's intent and concept of operations.

Lightweight Counter Mortar Radar Section

1-45. The lightweight counter mortar radar is a radar system designed for detecting, verifying, tracking, and classifying enemy mortar, cannon, and rocket locations. The section is made up of a section chief, a radar team chief, six WLRs specialists.

Survey Team

1-46. Survey is one of the critical tenants of the five requirements for accurate predicted fires. The use of survey provides FA assets with a common grid that will permit the massing of fires. Survey is used as a secondary method to establish survey control points (SCPs) (near stake and far stake data) for the WLR. The survey team equipment consists of an electronic surveying instrument providing accurate and timely three-dimensional position data.

1-47. The survey team is an additional duty assignment as directed by the commander that provides fifth order precision accuracy. Fifth-order survey accuracy standard are 7.0 meters horizontal circular error probable, 3.0 meters vertical probable error and no more than 0.4 mil azimuth probable error. The survey team provides survey to all FA assets in the battalion and supported units to include establishing SCPs. Survey is discussed in greater detail in Chapter 5.

Medical Platoon

1-48. The medical platoon, also referred to as battalion aid station (BAS), coordinates the Army Health System support operations for the battalion commander. The BAS is a forward most medically staffed treatment location organic to a maneuver battalion. It is uniquely organized, trained, and equipped to conduct medical treatment and evacuation tasks. For more information on medical treatment and evacuation tasks see ATP 4-02.4.

Ambulance Team

1-49. Ambulance teams provide evacuation within the battalion. Each ambulance is equipped with a medical equipment set ground ambulance. The principal function of the ambulance team is to collect and treat the sick and wounded on the battlefield and to safely evacuate them to the nearest role of care or ambulance exchange point.

1-50. The ambulance team consists of an emergency care SGT, ambulance driver, and an ambulance drivers' aide for each battery. Each ambulance team is dedicated to support a specific battery unless otherwise directed by the platoon leader. In mass casualty situations, nonmedical vehicles may be used to assist in casualty evacuation (CASEVAC) as directed by the commander. Plans for the use of nonmedical vehicles to perform CASEVAC should be included in the battalion standard operating procedures (SOP) and during rehearsals.

Combat Medic Section

1-51. The combat medic section provides a combat medic to each firing platoon to perform immediate life saving measures to casualties. Depending on mission variables, during lulls in combat operations combat medics should return to the medical platoon for consultation and proficiency training. The mission variables are mission, enemy, terrain and weather, troops and support available, time available, civil considerations and informational considerations, remembered with the mnemonic METT-TC (I).

1-52. Combat medics habitually work with the same battery. It is often necessary to augment these medics with Soldiers who have received enhanced first aid training (for example, combat lifesavers). The goal is to have one combat lifesaver (CLS) trained per section throughout the battalion. A combat lifesaver is a nonmedical Soldier trained to provide enhanced first aid as a secondary mission. The CLS provides emergency care as a secondary mission as their primary (combat) mission allows. The CLS does not replace the combat medic; however, they should assist the combat medic in providing far forward care and in preparing casualties for evacuation.

1-53. Aid and litter teams locate, treat, and transport injured individuals and casualties (CASEVAC and medical evacuation [MEDEVAC]), freeing medical platoon personnel from nontreatment duties. Patients in the triage category: minimal, have relatively minor injuries and are usually ambulatory; they may be used in aid and litter teams if medical personnel determine they can be returned to duty immediately.

Treatment Team

1-54. The medical treatment team is the basic medical treatment element of the BAS. It provides routine sick call services, triage, emergency medical care, and advanced medical treatment. This team is staffed with a physician assistant, one health care SGT and three health care specialists. The treatment team physician assistant, and enlisted health care personnel are all trained in medical treatment procedures, commensurate with their positions and skill levels. The medical treatment team establishes the BAS.

FORWARD SUPPORT COMPANY

1-55. There is one FSC attached to each FA battalion in a FAB, while FSCs are organic to each FA battalion in a DIVARTY. FSCs are attached to the FA battalions because they operate in dispersed fashion and regularly displace their firing batteries during combat. The FSCs may be attached to the BSB if the situation dictates. The FSC commander is responsible for executing the sustainment plan for the fires battalion in accordance with the supported fires battalion commander's guidance. The FSC is organic to the BSB and augments the FA battalion.

1-56. The FSCs provide the brigade, battalion, and BSB commanders flexibility for providing logistics support. FSCs provide the BSB commander the ability to task, organize, and prioritize the logistics effort to support large-scale combat operations.

1-57. The FSCs have a HQ section, distribution platoon, and a maintenance platoon. The distribution platoon consists of battalion and battery support squads. The maintenance platoon consists of a platoon HQ, maintenance control section, maintenance section, service and recovery section, and the field maintenance teams. See figure 1-3 for an example of an FSC.

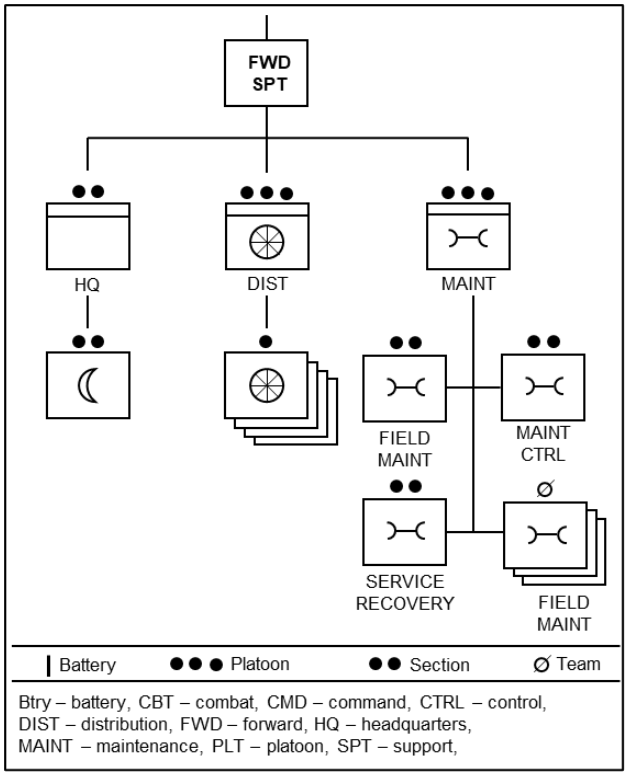


Figure 1-3. Forward support company

1-58. The HQ food service section provides class I support, food service, and food preparation for the company and its supported battalion. The food service section prepares, serves, and distributes the full range of operational rations.

1-59. The distribution platoon consists of a platoon HQ and four squads that can be task organized to distribute and provide the assets for movement of bulk water, bulk fuel, and the necessary platforms for hauling or transporting all classes of supply, to include repair parts as needed. The distribution platoon leader and platoon SGT execute all or a portion of the materiel management functions as required ensuring supply stocks are available and ready for distribution. These personnel also execute both distribution integration and transportation operations functions, as required, to ensure supplies are assigned a transportation mode, route, and movement time.

1-60. The maintenance platoon of the FSC performs field-level maintenance, maintenance management functions, dispatching, and scheduled maintenance operations for the FA battalion and FSC vehicles and equipment. The platoon consists of the platoon HQ section, maintenance control section, maintenance section, service and recovery section, and the field maintenance teams. The FSC maintenance platoon coordinates all maintenance requirements with the FSC commander.

SECTION III – FIELD ARTILLERY BATTALION KEY PERSONNEL AND RESPONSIBILITIES

1-61. The commander controls the activities of the battalion with the assistance of the battalion staff. The battalion XO synchronizes the efforts of the battalion staff. The battalion staff consists of coordinating, special, and personal staff officers.

1-62. The coordinating staff officers include the S-1, S-2, S-3, S-4, and the S-6. The chaplain and CSM are members of the commander's personal staff. Special staff officers include the FDO, targeting officer, CBRN officer, and physician assistant. The FSC has a distribution platoon leader who has as an additional duty and responsibility to function as the FA battalion ammunition officer.

COMMAND GROUP

1-63. ADP 6-0 identifies the command groups organization and duties. Discussion of the command group personnel and duties follow.

Battalion Commander

1-64. The battalion commander directs employment of the FA battalion in accordance with assigned missions and guidance form their higher FA HQ, typically a DIVARTY or corps FAB serving as the echelon force field artillery HQ. Aided by the battalion staff the battalion commander directs the tactical, logistical, administrative, and training activities of the FA battalion. When the FA battalion is direct support (DS) to a maneuver brigade or supported commander, the FA battalion commander serves as that maneuver or supported commander's FSCOORD and plans fires in support of operations.

1-65. In the role of FSCOORD, the battalion commander is responsible for advising the brigade commander and the supported commanders on the employment and training of all FS assets, as required. FM 3-09 details the duties of the FSCOORD. The battalion commander directs employment of the FA battalion in accordance with assigned missions and guidance from the supported higher HQ. The battalion commander works closely with the commanders of supported and supporting units to ensure that the FA battalion can accomplish its mission. The battalion commander has specific responsibilities, which include:

- Oversee the training of the battalion, with particular emphasis on those elements directly concerned with delivery of fires and FS.
- Continually assess the needs of the battalion in terms of its ability to sustain its internal operations and to support assigned missions.
- Advise the brigade commander on the effects of fires on the environment and rules of engagement (ROE).
- Establish clear and consistent standards and guidance for current and future operations.
- Establish policies to promote discipline and ensure a positive and ethical command climate within the battalion.
- Provide for the administrative and logistical support of the battalion.
- Coordinate fires digital training with the supported higher HQ FSE and battalion or squadron FSEs, as required.
- Control the operations and fires of FA units.
- Provide guidance and ensure targeting and lethal effects are applied in an ethical manner.
- Direct preparation of the FA battalion OPORD/field artillery support plan (FASP) see appendix A.
- Perform FSCOORD duties, as necessary:
  - Advise the supported/maneuver commander on all FS matters.
  - Direct and supervise the training, planning, and coordination of all FS assets supporting the maneuver unit, to include FSEs and FISTs.
  - Coordinate and control the operations and fires of R and general support-reinforcing (GSR) FA units.
  - Direct and supervise preparation of the FS plan in support of the maneuver plan.

Command Sergeant Major

1-66. The battalion CSM is the senior enlisted advisor to the commander. The CSM is both a specialist and a generalist. The CSM must have technical competence as a FA Soldier while being broadly knowledgeable in all functional areas such as operations, administration, and sustainment. The CSM best serves as an extension of the commander's eyes and primary troubleshooter. The CSM works closely with each of the battalion staff sections and the firing battery leaders, frequently changing the area of focus based on the needs of the unit and the direction of the commander. The CSM usually operates independently of, but complementary to the commander, frequently at a critical location where the commander needs additional supervision, oversight, or observation. Because of this, the CSM requires a vehicle, radio, and driver. The CSM has specific responsibilities, which include:

- Assist the commander in maintaining effective communication with senior and subordinate leaders and staffs.

- Validate that the commander's directions and intent are being properly communicated through the leadership chain to the front-line Soldiers.
- Advise the commander and staff on matters pertaining to enlisted Soldiers.
- Assist the S-3 in planning, coordinating, and supervising collective and individual training to include certification requirements.
- Mentor unit 1SGs and NCOs.
- Direct NCO professional development.
- Develop future leaders from within the enlisted ranks.

Executive Officer

1-67. As second in command and chief of staff, the XO must keep abreast of current and anticipated operations. The XO must be prepared to assume the duties of the commander if the need arises. The XO will be positioned forward, traveling among the battalion CP, the batteries, and the trains area(s) to perform their assigned duties. The XO has specific responsibilities, which include:

- Direct staff actions and operations, to include the battalion's military decision-making process (MDMP), especially production of the FA battalion OPORD/FASP and battalion staff involvement in the brigade FS plan.
- Supervise administrative and logistic operations within the battalion, to include development of the battalion's combat and field train's concept and sustainment plan.
- Collaborate and communicate with their counterparts on the maneuver battalion, BCT, DIVARTY, and FAB staffs as required.
- Direct development of continuity of the operation plan (OPLAN) for the CP, the various operations centers, and each staff section.
- Direct development of mutual support unit operations, as necessary or as directed, with another FA unit.
- Enforce the commander's standards throughout the unit.

1-68. The battalion commander decides which function (second in command or sustainment of the battalion) the XO will primarily focus on any given time. The commander bases this decision on the immediate requirements of the battalion and the overall tactical situation. Changing situations will require periodic changes in the XO's focus. Their primary function is to understand and executing the battalion commander's intent. When the XO is functioning primarily as second in command, one or more of the primary staff officers (often the S-4) assumes a major portion of the functions of senior sustainment coordinator. When the XO is primarily concerned with the sustainment of the battalion, the S-3 assumes a greater portion of the commander's duties in the battalion area.

S-1

1-69. The S-1 is the coordinating staff officer for all matters concerning human resources support (military and civilian). The S-1 provides technical direction to FA battalion units in the areas of: Manning the Force (personnel readiness management, personnel accounting, strength reporting; personal information management, and casualty operations); Provide Human Resources Services (postal operations and essential personnel services); Human Resources Planning and Operations; and Coordinate Personnel Support (morale, welfare, and recreation operations, command interest programs, and retention). For more information on the duties and responsibilities of the S-1, see FM 1.

S-2

1-70. The S-2 performs a wide variety of tasks concerning intelligence, targeting, and protection. The S-2 has specific responsibilities, which include:

- Supervise the intelligence section.
- Develop artillery focused IPOE in conjunction with other staff elements, the brigade S-2, and the S-2 for any supporting FA units.
- Develop enemy artillery order of battle and monitor tactics and techniques of enemy artillery, mortars, and target acquisition assets.

- Predict enemy artillery target locations in conjunction with the battalion targeting officer and pass predicted locations to the appropriate FSE, fires element, FDC, or targeting cell.
- Provide survivability and mobility information to the battalion S-3.
- Assess the enemy's capability to interfere with signal communications and supervise the counterintelligence aspects of signal operations within the battalion, in conjunction with the S-6.
- Recommend commander's critical information requirements (CCIRs), especially priority intelligence requirements, related to the primary mission, tasks, and role of the battalion.
- Prepare intelligence estimates, the enemy situation portion of the FA battalion OPLAN or OPORD and assists the targeting officer and the target acquisition platoon leader with the target acquisition tab of the FA battalion OPORD/FASP, including the radar deployment order, as required.
- Organize the collection effort designed to answer priority intelligence requirements, in coordination with other S-2s.
- Advise, in conjunction with the battalion targeting officer, the S-3 in positioning, tasking, and supervising organic and attached target acquisition assets and coordinating survey for target acquisition assets.
- Assist in developing and collecting the intelligence and target acquisition data necessary to support counterfire operations.
- Assist the counterfire operations section of the FA battalion or the target processing section of the DIVARTY or FAB in radar employment and positioning, decision points for cueing (to include cueing schedules), radar positioning, and radar zones.
- Template potential enemy locations; determine enemy-to-friendly FA force ratios; evaluate enemy FA target acquisition capabilities and tactics; and advise the FA battalion and maneuver commanders on the enemy indirect fire and counterfire threats.
- Verify IPOE analysis includes evaluation of the role and capabilities of ground, air, and naval forces, and possibly satellite and space-based assets in the enemy's counterfire program.
- Verify subordinate and supporting units are kept informed of the enemy situation.
- Provide analysis of the air and ground threat to assist the S-3 in coordinating the battalion ground and air defense plans.
- Advise the commander and staff on control of classified materials.
- Identify the role of intelligence in the development of essential field artillery tasks (EFATs) that support essential fire support tasks (EFSTs).

S-3

1-71. The S-3 is responsible for training, planning, and execution of battalion operations. The S-3 advises the battalion commander and has specific responsibilities, which include:

- FA organization for combat and attack guidance.
- Identification of EFATs.
- Positioning of battalion C2 and logistic assets to include CPs, FSC operations, and battalion trains.
- Direct preparation and dissemination of the FA battalion estimate, MDMP, and OPLAN or OPORD/FASP.
- Employment of organic, attached, and R firing units.
- Employment of organic and attached survey assets.
- Logistic priorities in coordination with the XO, S-4, and S-1.
- Supervise rehearsals.
- Direct the operations and positioning of the CP.
- Direct tactical movement, to include selection of positions, preparation of the tactical movement plan, and terrain management, for elements under the battalion's control or direction.
- Direct battalion survey operations.
- Coordinate plans with higher, subordinate, and adjacent FA units.
- Verify databases and commander's guidance in automated equipment are correct and properly coordinated within the battalion.

- Plan and manage ammunition consumption, distribution, and resupply, to include calculating ammunition requirements, basic loads, required supply rate (RSR), and controlled supply rate (CSR), in coordination with the S-4 and FSC commander.
- Integrate operations security into the overall operations of the unit.
- Establish communications priorities in conjunction with the S-6.
- Verify the CP and firing battery leaders understand the priorities, mission routing, clearance of fires, and attack guidance within the battalion's zone of fire.
- Maintain close coordination with the supported higher HQ FSE and other artillery HQ to ensure the battalion's responsibilities are coordinated and synchronized, and higher and supported unit requirements do not conflict with the FA battalion.
- Identify detailed responsibilities, to include specified and implied tasks, and FA responsibilities during the planning process.
- Verify ammunition requirements.
- Evaluate assigned CSRs to determine the impact on counterfire responsibilities.

Targeting Officer

1-72. The targeting officer and the S-2 section operate as part of the FA battalion counterfire operations section within the battalion CP. The targeting officer also serves as the battalion counterfire officer and functions as an assistant S-2. The targeting officer focuses on target information received from target acquisition sources and uses the Advanced Field Artillery Tactical Data System (AFATDS), distributed common ground/surface system-Army, and the effects management tool to collect, analyze and process this information into required target guidance and instructions. The targeting officer has specific responsibilities, which may include:

- Assist the S-2 and S-3 in target production, processing, administration, and assist with external targeting coordination.
- Assist the S-2 with enemy FA order of battle development and IPOE.
- Assist the S-2 with the intelligence, target acquisition, and surveillance portions of the OPLAN or OPORD, to include the radar deployment order, as required.
- Direct attached, organic, and OPCON target acquisition assets.
- Assist the battalion S-2 and S-3 with development and execution of the target acquisition and counterfire plans.
- Assist the S-2 in developing PIR to support the CCIR.
- Supervise the intelligence section in the absence of the S-2.
- Perform officer in charge shift duties for the S-2 section.
- Update target acquisition coverage of FA target acquisition assets, and position areas for FA target acquisition assets.
- Orient FA target acquisition assets to ensure required coverage.
- Track the status of FA target acquisition assets.
- Maintain situational understanding of targeting operations.
- Recommend target selection standards.
- Use target selection standards to develop enemy artillery targets and suspect targets.
- Provide target location error information on available target acquisition assets to the S-2, S-3, and brigade FSO as a basis for target selection standards recommendations to the targeting team.
- Advise the FA battalion commander and the supported higher HQ FSO on counterfire operations.
- Support targeting meetings, as required.
- Conduct predictive battle damage assessment and request battle damage assessment from external sources and supported higher HQ.

S-4

1-73. The S-4 coordinates and manages sustainment support for the battalion. The S-4 and FSC commander plan the continuity and integration of logistics. The FSC commander and S-4 host periodic logistics synchronization meetings with commanders, XOs, and 1SGs to adjust the concept of support and to update logistics requirements, as required. The S-4 has specific responsibilities, which include:

- Developing and synchronizing sustainment plans (supply, transportation [tactical and non-tactical], maintenance, and services).
- Plan, prepare, direct, and monitor battalion supply and sustainment operations for all classes of supply (except CL VIII).
- Prepare logistic estimates and plans using logistic preparation of the battlefield methodology and develop running estimates.
- Monitors field feeding, property book activities, maintenance operations, unit basic loads, equipment operational status, and the status of requisitions for equipment and supplies for the battalion.
- Monitor ammunition estimates, distribution, and resupply operations, to include authorized basic load, CSR, and RSR in coordination with the BN S-3 and FSC commander. Please refer to ATP 4-35 for additional information on RSR, CSR, and ammunition.
- Responsible for developing paragraph 4 of the operation order to include annex F, appendix 1, all tabs and exhibits, for attachment to the operation order as required
- Coordinates with the BSB support operations officer to establish and maintain logistics common operating procedures.
- Managing the property book and maintenance operations to ensure command supply discipline program command maintenance discipline program are integrated.
- Monitors route status to include main and alternate supply routes, bridges, and other sustainment and transportation restrictions in coordination with the S-3.
- Manages and assists with unit movement activities like document preparation; unit movement personnel duties; vehicle, aircraft, and railcar load plans
- Review the battalion's EFATs for critical logistic requirements.

S-6

1-74. The S-6 is responsible for communications and automation operations, management, and security. The S-6 is a coordinating staff officer and is directly accountable to the XO. The S-6 has specific responsibilities, which include:

- Selection of unit position area from a communications standpoint.
- Communications and automation planning, operations, priorities, security, training, and rehearsals.
- Communications and automation requirements associated with EFATs (for example, unique communications and automation equipment, networks, database exchange, procedures for data links, or other critical communications).
- Direct communications operations to include establishment of communications systems and installation and maintenance of equipment.
- Coordinate integration of battalion communication systems into those of the supported higher HQ, maneuver units, subordinate and supporting FA units.
- Coordinate with signal units for communications support.
- Supervise operator maintenance of communication equipment.
- Manage frequency allocations and assignments.
- Direct COMSEC.
- Supervise the COMSEC custodian who issues and accounts for COMSEC equipment, key lists, codes, ciphers, signal operating instructions (SOI), and authentication systems.
- Direct automation systems administration, maintenance, and security.
- Establish automation systems administrative and security procedures for automation hardware and software.
- Direct battalion local area networks configuration and usage of network capabilities.
- Update global positioning system satellite constellation (ephemeris) data for precision munitions capable units.
- Prepare communications estimates and the signal paragraph of the FA battalion OPORD/FASP.
- Perform communications reconnaissance and survey to assist the S-3 in positioning key elements (for example, retransmission stations) of the battalion.
- Plan for retransmission sites, as necessary.

Battalion Chaplain

1-75. The chaplain serves the commander as the personal staff officer to plan, synchronize, coordinate, and provide personally delivered religious support. The chaplain advises the commander on moral and ethical issues. The chaplain develops a religious support plan, conducts field services, and manages Soldier welfare ministries. The chaplain provides counseling to Soldiers and helps maintain the morale and spiritual well-being of personnel, as required. A religious affairs specialist supports the chaplain by performing religious support duties and coordinating religious programs, worship, and crisis intervention. For more information on duties and responsibilities of unit chaplains see ATP 1-05.01.

Forward Support Company Commander

1-76. The FSC commander should be involved in the planning process to assist the S-4 in determining logistics requirements and integrating the concept of sustainment into the tactical plan. The FSC commander knows best how to employ the FSC in support of the tactical plan. For more information on the duties and responsibilities of a FSC commander see ATP 4-90.

BATTALION S-3 SECTION

1-77. The battalion S-3 section consists of an assistant S-3, operations SGT, battalion master gunner, CBRN officer and NCO, and a battalion ammunition officer. The section performs their duties as directed by the S-3.

Assistant S-3

1-78. The assistant S-3 supervises the activities of the operations section and manages CP operations in the absence of the S-3. During operations, the assistant S-3 is usually on shift as a CP battle captain. The assistant S-3 constructs the field artillery support matrix (FASM) and positioning overlay for the FA battalion OPORD/FASP. During execution, the assistant S-3 ensures that all digital displays and manual status boards are updated as necessary; verifies targets and advises the S-3 of targets that violate FSCMs or maneuver control measures, or conflict with an ACM. The assistant S-3 focus is on positioning and ranging targets established in the FS plan, maintaining howitzer strength, and coordinating ammunition resupply.

Operations Sergeant

1-79. The operations SGT supervises the activities of enlisted Soldiers in the CP and assists the assistant S-3 with operations functions. The operations SGT trains all personnel on CP digital functions. Supervises network control duties for the battalion command network. The operations SGT maintains the staff journal and message log and verifies all situation maps and graphics, or charts (digital and paper) are always current. The operations SGT prepares the briefing site for the battalion's MDMP. The operations SGT verifies the CP supplies, maintenance, and security.

Field Artillery Master Gunner

1-80. The FA Master Gunner is a generalized term used for individuals that have been institutionally trained in advanced skills within the FA branch of the of the U.S. Army. Each master gunner provides an essential skillset within FA units. They integrate equipment and task-based mastery with advanced training techniques and advise commanders on unit training. Operationally, each master gunner is the commander and staff's enlisted subject matter expert (SME) within the scope of their equipment specialty.

1-81. A master gunner is the primary advisor and manager of the commander's certification and qualification program. A master gunner is the commander's key resource, and the unit focal point, for administering the training and qualification programs IAW TC 3-09.8. Additionally, each master gunner demonstrates expertise in the execution of Unit Training Management and related systems such as: Army Training Network, Digital Training Management System, and the Combined Arms Training Strategies (CATS) Development Tool.

1-82. The FA master gunner team is comprised of five distinct technical and tactical mastery specialties:

- Cannon Fires Master Gunner (13B).

- Launcher Fires Master Gunner (13M).
- Fire Control Master Gunner (13J).
- Fire Support Master Gunner (13F).
- Counterfire Master Gunner (13R) for more information on the counterfire master gunner see ATP 3-09.90.

1-83. Inherent duties for all FA master gunners with the respective MOS include:

- Advises the command team on the turnover of key personnel and manning shortfalls at all echelons.
- Analyzes and records current technical and tactical trends in the field.
- Advises the CSM on talent management for all personnel; ensuring personnel are in the proper positions.
- Assists the operations officer/operations NCO in planning, resourcing, and managing the unit operations.
- Coordinates with survey team to provide survey support.
- Provides technical expertise during troubleshooting MOS specific equipment.
- Provides quality assurance and quality control supervision for all certification and qualification events, to include training.
- Manages certification and qualification records for individuals, teams, crews, sections, platoons, batteries, and battalions.
- Monitors unit status reports and all mission essential equipment, assisting the maintenance process as needed.
- Provides input into the unit SOP.
- Assists in the forecasting and management of ammunition for certification qualification.
- Serves as the SME for individual tasks.
- Manages and assists in planning simulations training.
- Organizes, or conducts, initial skills training for new personnel.
- Participates in the MDMP process, providing SME level guidance into the planning process.

Cannon Fires Master Gunner

1-84. The cannon fires master gunner possesses a multitude of skills, knowledge, and attributes that enable success in the Fires warfighting function. The cannon fires master gunner provides an expansion on the knowledge, capabilities, and understanding of the technical and tactical aspects of all cannon weapon systems. The duties and responsibilities of the cannon fires master gunner are:

- Operates as the SME for all aspects of cannon weapon systems.
- Is responsible for the coordination and conduct of survey operations.
- Assists the command team during the execution of any firing incident investigations.
- Provides oversight and ensures uniformity within battery/platoon firing positions, as well as ammunition sections.
- Operates as the SME to manage small arms and crew served weapon certification programs.

Launcher Fires Master Gunner

1-85. The launcher fires master gunner specializes on those FA platforms that typically engage deep area targets and beyond. Because of this, the launcher fires master gunner possesses a multitude of skills, knowledge, and attributes that produce success in all matters of rocket and missile operations. This position provides purposeful expansion of knowledge, capability, and understanding of FA certification and qualification at the battalion level. The duties and responsibilities of the launcher fires master gunner are:

- Operates as the SME for all aspects of rocket and missile weapon systems.
- Assists the command team during the execution of any firing incident investigations.
- Assists the CDR and staff in conducting the MDMP process, providing SME level guidance into the planning process.
- Provides oversight and ensures uniformity within battery/platoon firing positions, as well as ammunition sections.
- Operates as the SME to manage small arms and crew served weapon certification programs.

Fire Control Master Gunner

1-86. The fire control master gunner possesses a multitude of skills, knowledge, and attributes that enable success in the Fires warfighting function. The fire control master gunner provides an expansion on the knowledge, capabilities, and understanding of the technical and tactical aspects of fire control. The fire control master gunner has been institutionally educated to execute these duties and is authorized formal approval to exercise certain responsibilities. The duties and responsibilities of the fire control master gunner are:

- Serves as the senior enlisted advisor to the commander and the SME for the CSM on all fire control related matters.
- Assists the command team during the execution of any firing incident investigations.
- Develops and conducts training of all FA FDOs, fire control NCOs, fire control SGTs, and fire control specialists.
- Assists the operations officer and NCO in planning, resourcing, and managing the battalion certification program.
- Oversees platoon and battery muzzle velocity variation records and logs.
- Manages the combined muzzle velocity variation record for the battalion.
- Operates as the SME for FA information system integration into the digital network.
- Oversees maintenance of primary and secondary computer systems.
- Operates as the SME to manage small arms and crew served weapon certification programs.
- Integrates digital communications and database elements with users of non-FA digital C2 systems.

Fire Support Master Gunner

1-87. The FS master gunner possesses a multitude of skills, knowledge, and attributes that enable success in Joint FS. The FS master gunner functions as the Joint FS senior enlisted advisor and master trainer to the FSO, FSCOORD, and commander. In an operational environment, the FS master gunner should position themselves to advise the FSO, FSCOORD and commander on all matters that pertain to joint FS planning, coordination and execution to include how to best employ joint FS personnel and targeting sensors.

1-88. The duties and responsibilities of the FS master gunner are:

- Serves as the FA battalion SME in all matters of joint FS sensor systems to include:
  - Training, maintenance, and operational employment of all joint FS personnel, their mounted and dismounted targeting systems, and reporting their status to the FSCOORD and DIVARTY FS master gunner.
  - Training, maintenance, and operational employment of joint FS digital and voice communications equipment and the reporting of their status to the FSCOORD and DIVARTY FS master gunner.
  - Plans, coordinates, executes, and maintains records of the FA battalion/BCT FS qualification Tables I-VI.
  - Assists maintenance personnel with understanding and identifying the components of the FS vehicles mission equipment package.
  - Coordinates with the BSB electronics communications maintenance shop to ensure that regular maintenance is conducted on mounted sensor systems.
- Serve as the unit JFO program manager to include:
  - Track and report training and qualification status of all JFOs in the BCT FIST to the FSCOORD and DIVARTY FS master gunner.
  - Track and report evaluation status of all JFOs in the BCT FIST to the FSCOORD and DIVARTY FS master gunner.
  - Track and maintain records of applicable JFO, JFO-evaluator, JFO-instructor, primary terminal attack controller, and academic instructors.
  - Ensure that evaluation folders meet the requirements of unit SOP and the most current JFO memorandum of agreement.
  - Assist the DIVARTY FS master gunner with the JFO-evaluator upgrade program.
  - Maintain communication with supporting air support operations squadron and air liaison officer.

Chemical, Biological, Radiological, and Nuclear Officer and Noncommissioned Officer

1-89. The CBRN officer's roles and responsibilities include the following:

- Advises the commander on all CBRN threats and hazards, ranging from weapons of mass destruction to toxic industrial materials.
- Develops CBRN defense plan.
- Implements mission oriented protective posture (referred to as MOPP).
- Implements CBRN warning and reporting.
- Prepares CBRN plans and orders.
- Plans operational decontamination missions.
- Serves as a battle captain.

1-90. The CBRN NCO's roles and responsibilities include the following:

- Advises the commander on the conduct of operations in CBRN environments.
- Advises the commander on unit CBRN readiness and associated assessments.
- Advises the commander on the integration of simulated CBRN threats and hazards into unit level training and associated assessments.
- Maintains the unit CBRN room.
- Maintains appropriate and current publications associated with CBRN operations.
- Supervises and performs field-level maintenance on unit CBRN defense equipment.
- Coordinates unit supply activities associated with CBRN defense equipment.
- Maintains the unit level optical inserts program.
- Develops, in conjunction with unit leaders, the CBRN portion of unit level administrative, deployment, and tactical SOPs as appropriate.
- Manages unit reports related to CBRN operations.
- Writes the CBRN portion of the FA battalion OPORD/FASP.
- Advises the commander on CBRN equipment maintenance, CBRN reconnaissance and surveillance, CBRN protection and decontamination, and supports contingency requirements.

1-91. For more information about core CBRN staff responsibilities and the development of a CBRN annex see ATP 3-11.36.

Battalion Ammunition Officer (MLRS/HIMARS)

1-92. The battalion ammunition officer (rocket battalion) manages re-supply of ammunition in the MLRS/HIMARS FA battalion. As such, the battalion ammunition officer may collocate with the operations section or in the combat trains CP. The ammunition officer has specific responsibilities, which include:

- Manage the use of the battalion ammunition carrying assets.
- Manage ammunition movement from the FSC holding area to the combat trains area and then forward to the batteries.
- Maintain accountability of ammunition.
- Verify ammunition loads delivered to the batteries contain the proper mix and quantities of ammunition.
- Perform mission analysis to verify ammunition-handling capabilities can support current operations and report shortcomings to the S-3.
- Coordinate with the S-4 on ammunition resupply actions.
- Manage turn-in of residue and unexpended ammunition.
- Assist the S-4 with the development and processing of requests for ammunition.

Note. FA cannon battalions do not have a battalion ammunition officer. The above listed tasks and considerations are conducted by the cannon battalion S-4.

BATTALION S-2 SECTION

1-93. The battalion S-2 section provides tactical focus and targeting capability for the FA battalion.

Intelligence Sergeant

1-94. The intelligence SGT assists the S-2 in the planning, supervision, and execution of intelligence and targeting operations. The intelligence SGT may be a shift leader for the section, especially in the absence of the S-2. In the FA battalion, the intelligence SGT may perform many of the section targeting functions.

TARGET ACQUISITION PLATOON

1-95. The target acquisition platoon has two key leaders the platoon leader and the target acquisition platoon SGT. A description of their duties follows.

Target Acquisition Platoon Leader

1-96. The platoon leader is responsible for the training, readiness, and maintenance of the platoon WLR equipment. The platoon leader supervises the movement, positioning, and emplacement of the WLRs. The platoon leader develops the platoon into an effective fighting force capable of performing its combat mission. Other duties include:

- Performs necessary tactical and technical coordination for FA WLRs and data collection systems, including communications, encryption, security, force protection, positioning, logistics, and administration.
- Maintains a status of FA WLRs and informs the commander and counterfire officer when necessary. Advises the commander and staff on the technical considerations affecting the employment of WLRs and recommends the general locations of radar sites and search azimuths.
- Monitors the mission support requirements of all WLRs within the supported area.
- Assists in the selection of radar sites.
- Reviews and consolidates requisitions for tools, repair parts, supplies, and equipment.
- Inspects maintenance of platoon vehicles and equipment.
- Monitors the terrain management plan for the positioning of each WLR section.
- Maintains communications between the section, battalion and the counterfire HQ.
- Performs necessary tactical coordination for WLRs in the area of operations (AO).
- Assists in the development of the radar deployment order using the DA Form 5957 (Radar Deployment Order [LRA]).
- Responsible for the certification and qualification of the WLR sections.

Target Acquisition Platoon Sergeant

1-97. The platoon SGT is the senior enlisted advisor to the platoon leader and must be prepared to assume the duties and responsibilities of the platoon leader. The platoon SGT ensures that WLR personnel are trained to perform all procedures used during combat operations. The platoon SGT is responsible for the maintenance, logistics, and discipline of the platoon. The platoon SGT works in close coordination with the platoon leader to ensure unity of effort. Other responsibilities consist of the following:

- Mentors and evaluates each WLR section chief.
- Coordinates survey support for the platoon.
- Coordinates and recommends general PAA and search areas in accordance with the commander's guidance and intent.
- Supervises maintenance and training of the WLR sections.
- Participates in the development of radar deployment order.
- Maintains the WLR maintenance status chart.
- Manages all administrative actions for the radar platoon in conjunction with the counterfire NCO and section chief.
- Prepares and maintains accountability charts for all essential repair parts stockage list.
- Coordinates higher-level maintenance for unserviceable equipment.
- Performs survey support to the battalion and supported units.

BATTALION FIRE DIRECTION CENTER

1-98. The FDC has two key leaders the FDO and the senior fire control SGT. A description of their duties follows.

Fire Direction Officer

1-99. The FDO supervises tactical and technical fire direction within the battalion. Based on guidance from the battalion commander, S-3, S-2, and targeting officer, the FDO decides where and how the battalion and any R units will fire. The FDO has specific responsibilities, which include:

- Supervise the FDC.
- Assist the FA battalion commander in developing tactical and technical fire direction guidance.
- Develop and supervise input of appropriate parameters into the AFATDS, coordinating these parameters with maneuver battalion FSEs and the BCT FSE, R, reinforced FA units, and FAB HQ, as necessary.
- Coordinate digital communications and database elements with users of non-FA digital C2 systems, as required.
- Analyze requested targets for attack by FA. Consider ROE, desired effects, method of fire, and types of ammunition needed.
- Verify dissemination of fire orders, schedules of fire, and schedules of targets to subordinate and supporting unit FDCs, FSEs, and the supported higher HQ FSE, as required.
- Maintain the current target display or overlay.
- Keep FA elements informed of targets.
- Establish procedures for interface between primary automated systems and any other digital system with which the FDC may be required to interface.
- Establish and maintain the tactical air integration system link to receive the airspace control overlay and facilitate coordination and clearance of airspace for mission execution.

Senior Fire Control Sergeant

1-100. The senior fire control SGT is the automated technical and tactical fire control expert in the battalion FDC. The senior fire control SGT has specific responsibilities that may include:

- Establish the tactical database in the battalion automated fire control system.
- Establish procedures and train personnel to accomplish tactical and technical fire direction in a degraded (manual and voice) mode.
- Monitor the technical input and executions of fire plans and missions.
- Advise the FDO on changes or updates to battlefield geometry and firing unit status.
- Crosscheck status boards with system data.
- Assist the FDO in conducting assigned duties.
- Responsible for the coordination and conduct of the FA technical rehearsal.

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Chapter 2

Field Artillery Battalion Command and Control

Section I describes command and support relationships. Section II describes the FA battalion CP and its operation. Section III discusses FA battalion communications.

SECTION I – COMMAND AND SUPPORT RELATIONSHIPS

2-1. FA cannon, rocket, and missile systems that are organic, assigned, attached to, or under the OPCON of FABs, DIVARTY, and BCTs provide commanders with continuously available, adjustable, and tailored FS under all weather conditions and in all types of terrain. These organizations can be task-organized with maneuver or a supported commander to provide the right combination of indirect fires capabilities for a given situation. See FM 3-09 for additional information on FA command and support relationships.

COMMAND AND SUPPORT RELATIONSHIPS

2-2. C2 of an FA battalion is established through a two-step process. The first step is to establish a command relationship with a senior HQ. This relationship - either organic, assigned, attached, or OPCON - is normally established with an FA HQ, such as DIVARTY or FAB. However, it can be established with a maneuver or other supported HQ.

2-3. Once a command relationship is established, the second step is to assign a support relationship. The four standard FA support relationships are DS, R, GSR, and general support (GS). The assignment of a support relationship and the inherent responsibilities associated with each mission establish in detail the relationship between the supporting FA unit and the maneuver or FA headquarter being supported.

DIRECT SUPPORT

2-4. *Direct support* is a support relationship requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance (FM 3-0). A FA battalion operating in DS (typically cannon units) of a unit is primarily concerned with the FA support needs of only that unit. The DS battalion commander is the FSCOORD for the supported maneuver force, normally a maneuver brigade. Fires are planned and coordinated with the maneuver unit, and the battalion is positioned where it can best support the scheme of maneuver. If the battalion cannot provide the support required for a planned scheme of maneuver, it is the responsibility of the FSCOORD to make this known to the supported commander. The same battalion should habitually support the same maneuver or supported force to provide continuity.

2-5. Each DS battalion trains and deploys four FS sections and one FIST HQ section. It sends one FS section to the designated maneuver brigade. After initial deployment, FS sections and FISTs will remain with the maneuver unit throughout the conflict.

2-6. The responsibility for immediate replacements for casualty losses to FS section and FIST personnel and equipment rests with the FA battalion with the DS mission. Similarly supply and maintenance support should be specified in terms of what the supported unit will provide and what the parent battalion will provide.

REINFORCING

2-7. *Reinforcing* is a support relationship requiring a force to support another supporting unit (FM 3-0). FA battalions reinforce other FA battalions that support maneuver or other supported forces. An R support relationship requires one FA unit to augment the fires of another FA unit.

2-8. When an organic or DS FA battalion requires more fires to meet supported force requirements, another FA battalion may be directed to reinforce it. An organic or DS FA battalion may be supported by up to 2 R battalions. A FA unit assigned an R support relationship retains its command relationship with its parent unit but is positioned by the reinforced FA unit and has priorities of support established by the reinforced FA unit, then the parent unit.

GENERAL SUPPORT REINFORCING

2-9. The GSR mission requires the FA battalion to furnish artillery fires for the force as a whole and to reinforce the fires of another FA battalion as a second priority. A GSR battalion remains under the control of the force field artillery HQ, which has priority of fires. However, a quick-fire channel is established for immediate response to the reinforced battalion's need for additional fires. The GSR mission offers the force commander flexibility to meet the requirements of a variety of tactical situations.

GENERAL SUPPORT

2-10. A FA battalion assigned the mission of GS provides FS for the force as a whole and remains under the immediate control of the force field artillery HQ. The GS mission provides immediate FA indirect fires responsive to the needs of the force commander. The GS mission is the most centralized of the support relationships.

2-11. Each FA support relationship provides the following FA support responsibilities:

- From whom and in what priority does the unit answer calls for fire?
- What is the zone of fire of the unit?
- Who furnishes FIST or FSO?
- With whom does the unit establish liaison?
- With whom does the unit establish communications?
- Who positions the unit?
- Who plans the fires of the unit?

2-12. FA battalions' best meet their FS responsibilities through utilization of the four support relationships. Referred to as DS, R, GSR, and GS. FA personnel must know the seven FA inherent responsibilities in Army support relationships listed in FM 3-09. Each support relationship specifies the way of meeting each of the seven inherent responsibilities. The support relationships and their responsibilities are summarized in Table 2-1.

Table 2-1. Support relationships and responsibilities of the field artillery battalion

All FA units with a mission of:	***Direct Support***	***Reinforcing***	***General Support Reinforcing***	***General Support***
Answers calls for fire in priority from:	1. Supported Unit 2. Own Observers 3. Force FA HQ	1. Reinforced FA 2. Own Observers 3. Force FA HQ	1. Force FA HQ 2. Own Observers 3. Reinforced Unit	1. Force FA HQ 2. Own Observers
Has as its zone of fire:	Zone of action of supported unit	Zone of fire of reinforced FA	Zone of action of supported unit to include zone of fire of reinforced FA unit	Zone of action of supported unit
Furnishes FIST/FSE2	Provides temporary replacements of casualty losses as required	No requirement	No requirement	No requirement
Furnishes liaison officer:	No requirement	LNO to reinforced FA unit HQ	LNO to reinforced FA unit HQ	LNO to supported unit HQ
FA – field artillery, FIST – fire support team, FSE – fire support element, HQ – headquarters, LNO – liaison officer				

NONSTANDARD MISSIONS

2-13. In tactical situations where the commander's intent cannot be accurately conveyed with one of the support relationships, a nonstandard mission may be assigned. Nonstandard missions amplify, limit, or change one or more of the seven inherent responsibilities or spell out contingencies not covered by the seven inherent responsibilities.

2-14. If the revision of a mission is so complex that the standard support relationship is no longer recognizable, a nonstandard mission statement will be issued that specifically addresses each of the seven inherent responsibilities or other areas not covered by the seven inherent responsibilities. An example of a nonstandard FA support relationship includes:

- 110 FAB: GSR 7 FAB; do not exceed 25 percent of the CSR in support of 7 FAB.
- 1-89 FA (MLRS, M270A1): GS; provide LNO to the corps FSE.

2-15. Commanders and staffs must consider the principles of FS execution referred to as the memory aid AWIFM-N when planning the integration of fires into an operation see FM 3-09. FS execution principles AWIFM-N considerations are:

- Adequate FS for the committed units.
- Weight to the main effort.
- Immediately available FS for the commander to influence the operations.
- Facilitate future operations.
- Maximum feasible centralized control (especially in the defense).
- Never place artillery in reserve.

2-16. In addition to never leaving FA in reserve and the FS execution principles of AWIFM-N, FA commanders and FS personnel also consider mission, ammunition, and positioning when planning for FA system employment. Considerations include:

- Mission. Appropriate FA unit command support relationships assigned based on the commander's intent and the overall situation.
- Ammunition. Allocate ammunition to provide more support for the main effort. Ensure adequate ammunition for future operations through positioning, ammunition restrictions, or CSR parameters during execution and planning.
- Positioning. Continually re-position FA units, ammunition, target acquisition resources, CPs, and assets to best support the plan as it is being executed. Assign direction of fire to mass fires in the appropriate AO.

2-17. Augmentation with additional FA units depends upon the mission variables of METT-TC (I), which may include:

- A FA battalion with a support relationship. For example, the division or corps commander may place an augmenting FAB or BCT FA battalion in a R or GSR relationship to a BCT's organic FA battalion.
- A FA battalion given a different command relationship. For example, an augmenting FA battalion attached to a BCT. The brigade commander has the authority to:
  - Give the FA battalion a R support relationship to an organic FA battalion.
  - Attach the FA unit to the organic FA battalion.
- United States Marine Corps or Multinational artillery units may support a BCT. Command, support, and liaison requirements must be coordinated. United States Marine Corps artillery units and North Atlantic Treaty Organization (NATO) artillery units are prepared to accomplish the tactical mission.

2-18. If the FA battalion is operating as part of a unified action, several other command relationship terms may be encountered (combatant command, operational command) during support. Detailed information on these command relationship terms is in FM 3-09 and ADP 5-0.

2-19. The FA battalion commander and staff also need to understand that some of the command relationship terms used have slightly different definitions within multinational forces than within Department of Defense. For example, in NATO, OPCON does not include authority to assign separate employment of components of the units concerned. (The NATO definition of OPCON more closely represents the Department of Defense definition of tactical control.) During unified action, FA battalion commanders should seek clarification from their higher commander or verify the definitions of operational terms through review of orders or from the agreements that established the force. Commanders use agreed-upon multinational command and support relationships when controlling multinational forces. For more information on multinational operation see FM 3-16.

ON-ORDER COMMAND OR SUPPORT RELATIONSHIPS

2-20. During an operation, a FA battalion may change command or support relationships. The assignment of an on-order FA relationship gives the battalion advance notice. This facilitates planning for and transition to the follow-on command or support relationship. Positioning, ammunition requirements, and timing of the change are several of the key considerations for battalions that have an on-order relationship. An on-order

relationship is in the maneuver OPORD, FS plan, and the FA battalion OPLAN or OPORD/FASP. For more information see FM 3-09.

SECTION II – COMMAND AND CONTROL

2-21. FA battalion commander exercises C2 through the establishment of a battalion CP. The CP, which is typically comprised of the S-3, S-2, S-6, FDC, and the counterfire operations section, is habitually located with the command group. Depending on mission variables, a combat trains CP may be established between the brigade support area and FA battalion main CP to provide more flexible and responsive logistical support to the battalion. The combat trains CP is the operations center for the combat trains. See Chapter 7.

2-22. The primary command facility is the battalion CP. The commander positions the command group with the CP. It is normally located where the commander can best command assets and influence FA and other fires systems in support of operations.

2-23. The battalion will also designate an alternate CP, which will assume control of battalion operations in the event the main CP becomes inoperable or loses communications. The alternate CP may be another FA battalion, a firing battery, the supported higher HQ FSE, or the combat train CP. The battalion may also form a tactical CP forward during high intensity, fast moving operations. The tactical CP concentrates on the current battle, performing critical operations, fire direction, and intelligence tasks, while the main CP performs planning and coordination functions.

2-24. In offensive operations, the main CP may be required to move forward to shorten communications distances and maintain control of the firing batteries and platoons. Under these conditions, the FA battalion may use a tactical CP technique, moving some elements of the main CP forward while the rear element of the main CP maintains control. Once established forward the tactical CP takes control, and the rear element breaks down and moves forward to reform a main CP. See CP positioning and movement later in the chapter for a discussion of employment of the tactical CP.

COMMAND POST ORGANIZATION AND OPERATION

2-25. The makeup of the FA battalion CP will vary with the situation and the commander's concept of operations. Most of the elements that comprise the CP are in the HHB, which may include:

- Command group.
- Main CP.
- Communications support.
- Survey elements.

COMMAND GROUP

2-26. The command group consists of the battalion commander, assisted by the CSM, the XO, and their drivers. They frequently operate out of the CP, where they can best monitor and control the battalion's operations.

2-27. The FA battalion commander positions where best to fulfill command responsibilities. This may be in the FA battalion CP, a trains location, a firing battery, or a key traffic or observation point. The FA battalion commander may at times be in the brigade HQ, a maneuver battalion FSE, or with the brigade commander at a critical location on the battlefield. The FA battalion commander will have digital equipment and radios in their vehicle that allows them to monitor digital traffic and aid in command of the battalion while operating away from the CP.

2-28. The members of the command group are often away from the CP observing, directing, or otherwise influencing the action at critical places on the battlefield. The battalion XO, CSM, and S-3 provide critical support, which allows the FA battalion commander the flexibility to be positioned where the situation dictates.

2-29. The battalion XO may operate out of the battalion trains CP instead of the main CP, especially when focusing on the battalion's sustainment operations. During periods of major planning actions, or when the

commander and S-3 may be out of the main CP for extended periods, the XO will probably be in the main CP.

MAIN COMMAND POST

2-30. The main CP serves as the FA battalion's primary operations center, assisting the battalion commander in synchronizing fires in support of brigade operations. It is the location in the battalion where the majority of planning, staff coordination, plan execution, receiving and disseminating information, and monitoring of key events occur. Critical functions of the CP include:

- Advise the battalion commander, and as appropriate, key FS personnel, on the organization for combat, positioning, allocation of ammunition and attack guidance.
- Perform tactical fire direction, to include selection of units and ammunition to support fire mission requests in response to the supported commander's attack guidance and to create the desired effects.
- Plan operations, to include generating a FA battalion, OPLAN or OPORD/FASP that outlines the concept of operations and responsibilities for the battalion and describes the FA battalion commander's plan for accomplishing assigned missions and responsibilities. Note: In the FA battalion, the OPLAN or OPORD/FASP must address the scheme of fires and is prepared in coordination with the supported higher HQ FSE as part of the maneuver OPORD/FASP. The operations section, in coordination with the maneuver FSEs, ensure that the FA plan is synchronized with the maneuver force plan. The CP automation systems provide a collaborative planning capability to assist in these planning functions.
- Direct current operations, to include controlling fires and target acquisition assets that are organic, attached, or R to the battalion; move and position firing elements; orchestrate the delivery of effective fires in support of close combat.
- Monitor technical fire direction, to include providing technical assistance to battery and platoon FDCs.
- Maintain situational understanding of the overall supported higher HQ operation to ensure the battalion provides timely, responsive support and rapidly adjusts to any changes encountered.
- Conduct information management operations, receiving, processing, and disseminating critical battlefield information in all formats.
- Direct counterfire operations.
- Conduct essential intelligence operations and tasks.
- Perform targeting.
- Direct and coordinate tactical unmanned aircraft system (UAS) employment.
- Advise the S-4 of Class V requirements.
- Direct survey operations to support the battalion's operations.
- Direct communications operations, to include radio, wire, automation management, local area networks, and signal security.
- Direct battalion operations within a CBRN environment to include CBRN defense.
- Provide general direction of administrative and logistic operations in coordination with the battalion trains CP, FSC, and the firing batteries.

HEADQUARTERS AND HEADQUARTERS BATTERY COMMANDER AND FIRST SERGEANT

2-31. The HHB commander and 1SG are responsible for the security and logistical support for the CP. Dispersed elements of HHB at the battalion main CP, or at the battalion trains CP, must work closely with staff officers and section leaders to ensure adequate support for all elements.

2-32. With the HHB commander and 1SG usually directing the security, support, and movement of the battalion main CP, the FSC commander and 1SG assume responsibility for the FA battalion support area. Due to dispersion of personnel, both leadership teams must coordinate their efforts between the CP and the FA battalion support area. The FA battalion commander designates command and security responsibilities for the battalion trains CP. While positioning and movement of the main CP is primarily an S-3 responsibility, the HHB commander and 1SG assist in reconnaissance, movement, and occupation.

COMMUNICATIONS SUPPORT

2-33. The S-6, S-3, and the HHB commander work together to ensure the CP has adequate communications support. This primarily includes assistance in the setup and maintenance of radio, digital communications and automation equipment, and retransmission capability. The S-6 supports the battalions other operations centers and the firing batteries. The communications element in the CP may consist of a contact team that travels with and gives priority to CP support.

SURVEY ELEMENTS

2-34. Survey for the battalion is provided by an ad-hoc team. The survey team may base their operations out of the CP to allow better control by the S-3.

2-35. There is no longer a military occupational specialty dedicated solely to survey. This creates a need to train non-survey soldiers on how to operate the survey equipment. The commander designates the personnel to train and form the survey team. The survey team provides survey for the unit. The survey equipment is assigned to the FA battalion. For more information on survey see FM 3-09 and ATP 3-09.02.

COMMAND POST ORGANIZATION

2-36. The operations, intelligence element, and the battalion FDC are major functional elements of the FA battalion CP. The operations and intelligence elements manage both current and future operations and coordinates aspects of FA support. They also perform planning and operational functions, to include developing fire plans, orders, conducting artillery focused IPOE, developing artillery targets, planning, and executing supported higher HQ counterfire operations, tracking the status of subordinate units, and controlling unit movements.

2-37. The FDC performs tactical fire direction. This is performed by processing calls for fire, determining the type and amount of ammunition required to create the desired effects, and transmitting fire orders to the platoon FDCs or platoon operations centers.

S-3 OPERATIONS SECTION

2-38. The operations section responsibilities include:

- Plan and coordinate the positioning of logistic elements, firing batteries, and platoons supporting operations.
- Plan and coordinate battalion movements and assist the battery commanders with coordination of movements. This includes assignment of routes, PAA, and their clearance through the AO.
- Maintain current operational status of organic, attached, and R and reinforced units.
- Prepare and disseminate operational reports.
- Maintain friendly situational understanding and common operational picture (COP).
- Coordinate and integrate risk management and other protection tasks into plans and operations.
- Disseminate the battalion COP.
- Coordinate survey requirements for the supported higher HQ to include radars or units from the FAB or DIVARTY.
- Advise the FDC, FSEs, R and reinforced units on scheduling of planned fires, as required.
- Prepare and disseminate the FA battalion OPLAN or OPORD, while assisting FSEs with development of the supported higher HQ FS plan.
- Monitor ammunition consumption and resupply for the battalion.
- Inform battalion sections like FSC commander, combat trains, S-1, and S-4 of the status of the supported forces and any changes to sustainment requirements.
- Supervise operations in CBRN environment.
- Direct operations security within the battalion along with the S-2 and S-6.
- Assume control of R and reinforced artillery battalions during mutual support unit operations, as required.
- Coordinate communications requirements with the S-6 for the battalion.

S-2 SECTION

2-39. The S-2 intelligence section provides the commander and S-3 with information and intelligence essential to the operation and survival of the battalion. The intelligence section responsibilities include:

- Prepare artillery focused IPOE products of the supported higher HQ AO in coordination with the brigade S-2. The FA battalion IPOE is an extension of the BCT IPOE and higher HQ IPOE, focused on specific artillery-related intelligence requirements. The IPOE process is a continuous process.
- Assist the S-3 in battery and platoon PAA selection to ensure that positions are aligned with IPOE insights and survivability requirements.
- Assist the counterfire operations section in the development of the target acquisition Annex or Tab to the FA battalion OPLAN or OPORD and the radar deployment order for organic and attached radars. Ensures the radar deployment order designates positions and establishes cueing procedures. Coordinate the use of WLRs, organic or attached, with the battalion S-3.
- Develop targeting data based on the brigade commander's HPT list and attack guidance matrix. Provide recommendations and input to the targeting team that develop the HPT list and attack guidance matrix for the brigade commander.
- Monitor enemy artillery tactics and techniques within the supported higher HQ area of operation.
- Exchange combat information and intelligence with the supported higher HQ, subordinate units, R, reinforced units, and adjacent units, as required.
- Coordinate with battery 1SGs to develop a ground and air defense plan for the battalion.
- Assist the S-3 with planning, coordination, and conduct of operations security.
- Coordinate external battalion security requirements.
- Support the development of CCIR, specifically priority intelligence requirements.

COUNTERFIRE OPERATIONS SECTION

2-40. The counterfire operations section and the FA battalion S-2 make up the target processing team. This is a working group that recommends, and updates target acquisition coverage, control of FA target acquisition assets and position areas for FA target acquisition assets. The counterfire operations section duties during the conduct of counterfire operations include:

- Advise the FA battalion commander on counterfire operations.
- Produce the radar deployment order for the supported higher HQ.
- Orient FA target acquisition assets to ensure required coverage of the supported higher HQ.
- Track FA target acquisition assets and reports status to the S-2 and S-3.
- Assist the battalion S-2 and S-3 with development and execution of the FA target acquisition and counterfire plan.
- Maintain situational understanding of targeting operations.
- Recommend target selection standards.
- Use target selection standards to develop enemy artillery targets and suspect targets.
- Provide target location error information on available target acquisition assets to the S-2, S-3, and brigade FSO as a basis for target selection standards recommendation to the targeting working group.
- Support targeting meetings, as required.
- Assist the battalion S-2 in writing the target acquisition and surveillance portions of the FA battalion OPLAN or OPORD/FASP.
- Direct attached, organic, and OPCON target acquisition assets.
- Assist the S-2 in developing PIRs.
- Assist battalion staff to develop commander critical information requirements.
- Conduct predictive battle damage assessment and request battle damage assessment from external sources and supported higher HQ.
- Assist in the planning of tactical UAS missions and operations.

COMMAND POST ACTIVITIES

2-41. The S-3 is positioned in the CP to see and hear critical information that will allows making sound tactical decisions based on the commander's guidance. In the event the S-3 is not in the CP, the assistant S-3

or shift officer assumes the S-3's responsibility of managing CP operations. The S-3 and XO should develop shifts to cover 24-hour operations. This should be covered in the tactical SOP.

2-42. Each section should maintain a shift log, documenting the major events, actions, and message traffic applicable to the section, as well as accomplishment of major shift responsibilities. The log serves as a record of the major events and as a tool to prepare for shift briefings.

2-43. Shifts should overlap to allow proper handover of the battle. In addition, shift changeover for each section may be staggered to improve continuity. Update approximately an hour before shift change, maps, status boards, shift logs, and other tools with current information; filing and document destruction is accomplished; and general CP housekeeping completed. The oncoming shift should be given time to review maps, status boards, shift logs, and other applicable tools. The outgoing shift should provide a shift briefing that address, as a minimum, current operational status, CP status, and battalion CP and section tasks. The S-3 or section leaders may establish a tactical SOP format for the shift change briefing.

MANAGEMENT OF TACTICAL INFORMATION

2-44. The battalion S-3 and the rest of the CP staff control the day-to-day operations of the FA battalion. They receive and track battlefield information into tactical movement, delivery of fires, and sustainment operations. For the battalion staff to effectively track the tactical situation and satisfy the maneuver commander's concept of fires, situational understanding and battle tracking must be as accurate as possible. Using digital systems, the staff provides situational understanding, battle tracking capabilities, collaborative planning, and rapid dissemination of information.

2-45. The primary computer system provides automated planning, preparation, execution, and assessment of close combat, counterfire, interdiction, shaping operations, and suppression of enemy air defenses (SEAD). The primary computer system interfaces with other automation systems. It can also provide numerous separate overlays to allow specific information when needed such as enemy overlay, target overlay, friendly artillery locations overlay, and operational graphics.

2-46. Display the commander's tactical display at the FA battalion CP. Display the supported higher HQ staffs map, overlays, and other control measures. The primary computer system publishes unit information, targets, and certain geometries that other automated systems in the CP can access.

2-47. Automated systems display the current situation on a map with boundaries and other control measures. It is important to remember that the current situation provided by a satellite-based system has a time delay and is near-real time, not real time.

2-48. Where the various systems are located throughout the CP will depend on the CP design as determined by the commander, XO, and S-3. It is imperative that each staff member fully understand the capabilities of each system and use each system to facilitate CP information management. The physical layout of the CP should support the flow of information and allow the S-3 to direct the efforts of the staff in an efficient manner.

2-49. The S-3 is positioned in the CP to effectively manage personnel. The S-3 is positioned to have access to radios, telephones, and digital display devices. The S-3 also monitors and manages the back-up systems, such as the operations and intelligence maps and other manual status charts.

2-50. The primary information sources in the CP are its internal and external digital and voice networks. In a FA battalion, the networks that give the S-3 the clearest picture of current events on the battlefield are the supported higher HQ FS coordination network and the command voice network. It is important to understand that the FA battalion staff monitors these networks and does not transmit on them. To reduce confusion in the CP, it is recommended these networks be the only ones audible on remote devices in the operations (extension) area. Use headsets when monitoring the other voice networks or monitor from within the appropriate staff vehicles. The S-3 is kept informed of most of the traffic on the other networks (data and voice) by status charts updates, reviewing message forms, and computer displays. Bring anything of significance that requires the S-3's attention to the S-3 immediately.

2-51. The S-3's principal networks for fire planning and execution are the battalion fire direction, operations, fires, and supported higher HQ FS networks. These networks allow the CP to review fire missions and perform a secondary independent check of FS coordination measures. The S-3 can observe targets in relation

to the tactical situation. The S-3 must closely monitor the information received from all tactical information sources to verify critical data, identify potentially inaccurate information, and to resolve discrepancies between conflicting reports or data.

2-52. By monitoring the supported command network plus the situational understanding provided by automation systems, the S-3 determines the tempo of the operation, anticipates where fires will be directed by the battalion commander or brigade FSO, and maintains situational awareness. This allows the S-3 to be proactive in positioning units and managing ammunition for effective tactical control of fires.

2-53. The CP passes tactical orders and information to the batteries and any supporting units over the battalion command network. Tactical orders and information are sent to the firing platoons over AFATDS. The voice command network radio is remoted to the operations SGT's post and monitored with a headset. The S-3 receives the information passed on this network by monitoring the computer screens and by reviewing messages and reports used to update the situation. Avoid sending situation reports and updates of information with battalion combat and field trains on this network. Send routine administrative and logistical traffic on the battalion administrative and logistics network.

2-54. The S-2 section monitors the supported higher HQ operations and intelligence network. The focus of the traffic on operations and intelligence network is maneuver specific, but the S-2 can gather information relevant to FA support requirements and operational security considerations. The S-2 section should monitor this with either a remote (headset) or from inside the S-2 vehicle. Pass routine traffic to the S-3 in message form. The S-3 monitors critical traffic requiring attention, on the S-2's remote. The S-2 shares target information generated by the target acquisition platoon with the supported higher HQ analyst.

DISPLAY OF INFORMATION

2-55. Automation systems provide the FA battalion CP with tools for the management of information. The digital systems are very dependent on generator power and the primary computer system will not be available on the move. It is recommended that the CP also maintain alternate information management tools to augment and back-up the digital systems, which may include:

- Map boards that facilitate exchange of overlays with minimum loss of accuracy.
- Overlays with tactical information to assist CP personnel in planning and executing operations (for example, maneuver graphics, PAA, target, and sustainment).
- Status boards along functional lines to track the current status of elements and other combat information.

COMMAND POST POSITIONING AND MOVEMENT

2-56. The S-3 controls the movement and positioning of the FA battalion CP based on the guidance and direction of the commander. The S-2 provides mobility information concerning terrain, trafficability of roads, obstacles, minefields, contaminated areas, and survivability information regarding ground, air, and CBRN threats from enemy forces and the operational environment. The S-2 also provides information about the civilian populace in the area. The S-6 provides guidance on communications factors. The other members of the CP may also assist with reconnaissance, security, and advance party operations. The FSE assists with clearance for the positions and movement routes that must be coordinated with the supported higher HQ staff and subordinate maneuver battalions.

COMMAND POST POSITIONING CONSIDERATIONS

2-57. The S-3 uses the IPOE products in determining positions. The S-3 usually plans primary, alternate, and any supplementary CP positions. The primary consideration for positioning the CP is the ability to accomplish its mission. The S-3 must also consider if the CP will be collocated with other elements, such as the battalion trains or a supported unit.

Protection and Survivability of the Command Post

2-58. Depending on the threat, CPs need to remain as small as possible and highly mobile, especially at lower echelons. Considerations for CP survivability include but are not limited to dispersion, size, redundancy, mobility, electromagnetic emissions, and signatures see (FM 6-0). *Survivability* is a quality or capability of military forces which permits them to avoid or withstand hostile actions or environmental conditions while

retaining the ability to fulfill their primary mission (ATP 3-37.34) *Survivability operations* are those protection activities that alter the physical environment by providing or improving cover, camouflage, and concealment (ATP 3-37.34. In other words, a specific group of tasks that enhance survivability.

2-59. Position the CP based on general movement of the forward line of own troops (FLOT), which may be forward, rearward, static, or erratic.

- In a sustained, rapidly advancing offensive operation, position the CP as far forward as feasible.
- During a retrograde, place the CP farther to the rear than normal. On a non-linear battlefield, increased security considerations may be less predictable than on a linear battlefield.

2-60. If there is a high enemy counterfire threat, position the CP outside the range of mortars and as many of the enemy's artillery systems as feasible. Defilade or reverse slope positioning may provide increased protection; however, retransmission of communications may be necessary.

2-61. In response to high enemy air threat, position the CP in heavily wooded or urban terrain that allows better camouflage. Place the CP close to an air and missile defense unit that can provide coverage. The use of wooded or urban terrain, coupled with camouflage and light discipline, are also critical to reducing vulnerability to air and satellite imagery.

2-62. Position the CP with or near other friendly elements when there is a high risk from enemy penetrating forces or small force operations. When there is a threat of rapid penetration from an enemy attack or counterattack, position the CP off the expected axis of advance, especially any high-speed avenues of approach. For increased security, position infantry, military police, or logistic elements with the CP.

2-63. If there is a significant electromagnetic warfare threat, position the CP away from the supported CPs and the battalion trains to reduce the threat to them and to reduce the electromagnetic signature. To reduce electromagnetic locating vulnerability, position the CP in defilade or masked locations and use retransmission. Position the CP close to the maneuver CP when extensive coordination with the BCT HQ is critical.

2-64. Consider communications factors such as digital and radio communication ranges and retransmission capability. Communication considerations are the distances between units, the capabilities of the equipment, atmospheric conditions, and terrain. Consider grounding of equipment, tie-downs for extensions and shelters, and preparation of defensive positions for terrain that is extremely wet, rocky, or steep, and urban terrain that may interfere with weapon platforms. Consider hilly or mountainous terrain that provides survivability advantages but may also interfere with communications for the CP.

TACTICAL COMMAND POST CONSIDERATIONS

2-65. To facilitate the continuity of operations during movement of the CP to a new location, the battalion may use a tactical CP. This is a variation of movement by echelon. A small portion of the main CP, and minimal security and support elements, will move to the new location in advance of the remainder of the CP. Designate a FDC to assume control of fire mission processing and act as the battalion until the main CP can re-assume control and continue to process fire missions. Maintain tactical fire control at the main CP (-) during the tactical CP movement. Once the tactical CP is in place it conducts a continuity of operations exchange with the main CP (-) and establishes communications with subordinate, higher, and supported units before it assumes control of the battalion. The remainder of the CP then moves to the new location and normal operations can resume.

2-66. Composition of the tactical CP is limited to key equipment and personnel. As an example, a tactical CP may include:

- A high-mobility multipurpose-wheeled vehicle; operations vehicle with extension.
- A primary computer system, status boards and situation maps.
- S-2 or S-3; assistant S-3; CP NCO; FDO and FDC NCO; S-2 NCO; selected operations and intelligence and FDC personnel; and other HHB elements to provide support and security.

2-67. The size and composition of the tactical CP will depend on the tactical situation and the S-3's major concerns. A smaller tactical CP may be preferred during periods of rapid advancement and frequent moves, while utilizing a larger tactical CP if security is a major issue, and speed of movement is not critical. During

a rapidly advancing offensive operation, the tactical CP may be moving again shortly after the rest of the CP has closed and assumed control of the battalion.

2-68. The unit can use a version of the tactical CP technique in a reversed sequence, during defensive operations when the battalion must move to the rear or laterally away from a penetration. The bulk of the CP would move first, while the tactical CP remains in place controlling the battalion until a new CP is established. This allows quick displacement of the tactical CP and the ability to remain close to the fight.

2-69. The battalion can also form a tactical CP to place the battalion commander or S-3 closer to the action, near the maneuver commander, the battalion CP, or the supported higher HQ FSE. Use the tactical CP during operations requiring frequent, fast moves where the main CP would have trouble-keeping pace with the supported maneuver unit. The tactical CP would be the focal point for battalion control of the current fight, emphasizing operations, fire direction, and limited target acquisition and intelligence functions. The main CP would follow as soon as possible and monitor the situation, prepared to assume control, as required. The main CP continues to conduct planning and other CP functions to allow the tactical CP to concentrate on the current fight during a critical stage in the battle.

2-70. The tactical CP will consist of only one or two vehicles that have the speed and maneuverability to keep up with the maneuver forces. The tactical CP should have a robust communications capability as it may operate separate from the main CP for a longer period and must be fully capable of controlling the battalion's fires and directing subordinate elements. The tactical CP technique is also useful when the commander wants to send a CP element forward with an artillery raid.

Additional Command Post Movement Techniques

2-71. Security, organization for combat, personnel strength, equipment status, availability of mutually supporting battalions, and the tactical situation influences movement of the CP. The CP may move as a single unit, or in several small elements. A major consideration in determining the CP movement technique is the availability of an element to assume the CP functions for continuity of operations. For example, a primary computer system at the FA battalion could conduct continuity of operations with the brigade FSE automated system, or a firing platoon FDC primary computer system. Rehearsals and clear tactical SOPs prevent confusion.

LIAISON OPERATIONS

2-72. One of the inherent responsibilities of a FA battalion assigned a R or a GSR is to provide liaison to the reinforced unit. The battalion commander may direct liaison to be established with another FA unit, a maneuver unit, or any other element. Liaison may be necessary with nonmilitary elements. FA battalions, establish liaison teams from existing resources.

2-73. Liaison is the contact or intercommunication maintained between elements to ensure mutual understanding and unity of purpose and action. Liaison activities augment the commander's ability to synchronize and focus combat power. Liaison includes establishing and maintaining physical contact and communications. Establish liaison activities to ensure cooperation and understanding between commanders and staffs; coordination on tactical matters to achieve mutual purpose, support, and action; exact and precise understanding of implied or inferred coordination measures to achieve synchronized results.

2-74. Overall, liaison becomes another tool to help commanders gain assurance that supporting and supported commanders understand implicit coordination and achieve synchronized results. Effective liaison enhances the commander's confidence in planning and in mission execution.

2-75. If the reinforced and R units have compatible communications and automation equipment, and both units maintain communications and situational understanding, the actual physical presence of a liaison team at the reinforced unit may not be required. If the units choose to collocate CPs or FDCs, no additional liaison is required.

2-76. When an FA battalion is assigned a support relationship of GS, it will normally be positioned in the assigned area of the supported unit, usually a division. The GS FA battalion commander may consider sending a liaison team to the division FSE. This team can help the battalion commander track the maneuver situation and keep the DIVARTY commander informed of the location and status of the FA battalion that is in the area but not under the DIVARTYs control.

2-77. Additionally, regionally aligned security force assistance brigades have fires advisor teams in their FA battalion embedded with host/partner nation at echelon who maintain U.S based communication systems to enable communication between partner and U.S. forces. Part of their advisor mission is to serve as liaisons and facilitate alliance based military operations. They are a valuable resource that U.S. forces can access to help coordinate their operations with an adjacent partner force who will save that force from needing to allocate additional personnel or resources.

2-78. SFAB FA advisor teams ensure allies/partners are involved in FS and FA tactical/technical rehearsals, when possible, to ensure mutual understanding of US FA units' plans, locations, movements, and ensures U.S. forces are aware of the supported forces FS and FA tactical plans.

SECTION III – FIELD ARTILLERY BATTALION COMMUNICATIONS

2-79. The commander must develop techniques that promote an expeditious flow of information throughout the unit. The techniques developed are listed in the unit's SOP. Units' base decisions on the information derived from the C2 processes and activities:

- Acquire information.
- Assess whether new actions are required.
- Determine what these actions should be.
- Direct subordinates to take appropriate actions.
- Supervise and assess.

2-80. C2 includes the facilities, personnel, networks, information systems, processes, and procedures essential to a commander to enable C2. The C2 system of the FA battalion is the CP, the personnel that operate the CP, and a mixture of automation systems and the communications systems with which they operate.

AUTOMATED SYSTEMS

2-81. Automated systems provide the electromagnetic architecture in which situational understanding is accomplished. Units are equipped with automated systems, providing them significant advantages in collecting technical information, and distributing information and intelligence rapidly. The automated systems enable the commander to rapidly gain reliable information and achieve information dominance in their operational environment. The automated systems satisfy two critical requirements: interoperability, and situational understanding. These systems pass critical information at decisive times, which leverage and exploit tactical success and facilitate future operations.

2-82. At the FA battalion, assigned operators use internet protocol services to establish data and voice communications to the HQ. Setup for the network is a standard procedure that consists of powering the system, pointing to the satellite, and connecting the data equipment for needed dial tone or e-mail and organizational traffic.

2-83. The battalion vertically and horizontally integrates automated systems at the tactical and operational levels. The digital message capabilities of the automated systems provide the FA battalion commander a variety of tools to assist in command of the battalion.

COMMUNICATION NETWORKS

2-84. The FA battalions rely on a federation of communication networks that collectively enable C2. Not all components of the network are under their control. The network is a critical tool in operations and must be redundant, flexible, and adaptive to the commander. It is important that leaders are familiar with the capabilities and limitations of the architecture and components of the current communications network.

2-85. For more information on the unit's various communication networks see appropriate technical manuals and unit SOPs.

FIELD ARTILLERY BATTALION RADIO COMMUNICATION OPERATIONS

2-86. Radio communications are critical to the operation of the FA battalion. The different responsibilities and areas that are essential to radio communications success are as follows.

RADIO COMMUNICATIONS RESPONSIBILITIES

2-87. Radio communication is a command responsibility and essential to efficient command of the FA battalion and enhances its ability to provide effective fires. The commander's radio communications plan will include supported, reinforced, and adjacent units. To establish a responsive and dependable communications system, the FA battalion must consider and work within the following parameters, to include:

- Rely heavily on frequency modulation radio communications.
- Monitor multiple radio networks while maintaining continuity of operations during displacement.
- Communicate over long distances to many diverse elements, such as FIST, FSEs, R units, DIVARTY, FAB, and the supported force.
- Rely increasingly on digital data communications, which have shorter-range capabilities than voice communications.

2-88. The FA battalion S-6 has overall authority and direction of the communications assets and operations within the FA battalion. The battalion S-6 must work closely with the brigade S-6 to ensure efficient radio communications for FS throughout the supported higher HQ AO. The S-6 maintains the communications and automation systems, in addition operates retransmission stations for the FA battalion. The S-6 has a section HQ, an automation management section, and a retransmission section.

2-89. Elements of the battalion send communications equipment for repair through the S-6. The communications maintenance personnel perform maintenance on battalion HQ communications equipment within their capability. Repair personnel in the FSC provide on-site field maintenance and assistance for the subordinate units of the battalion.

2-90. The automation management section assists with the establishment, operation, and maintenance of the battalion's automation systems. This includes hardware, software, networks, and automation security. The section's networking functions include management and maintenance internal to the FA battalion local area network.

2-91. The retransmission section establishes and maintains the retransmission station, as required. Dual retransmission capability is essential to maintaining digital and voice communications over extended distances or due to areas of rough and complex terrain.

ECHELONS OF COMMAND

2-92. The senior unit is responsible for establishing communications links with its subordinate units. This responsibility is primarily one of planning and directing the establishment of the communications links since assets belonging to either the senior HQ or the subordinate unit may be used. The supported higher HQ has the responsibility to establish communications with the FA battalion and the FA battalion HQ has responsibility to establish communications with its organic elements. The battalion's responsibilities for establishing communications include:

- Senior to subordinate. A senior unit is responsible for establishing communications with a subordinate unit. An attached unit of any size is subordinate to the attached command.
- Supporting to supported. A supporting unit is responsible for establishing communications with the supported unit.
- R to Reinforced. A reinforcing unit is responsible for establishing communications with the reinforced unit.
- Passing to stationary. In a forward passage of lines, the passing unit is responsible for establishing communications with the stationary unit.
- Stationary to passing. In a rearward passage of lines, the stationary unit is responsible for establishing communications with the passing unit.

- Lateral communications. The next higher commander or SOP directs responsibility for establishing communications between adjacent units. If responsibility is not directed by orders, the commander of the unit on the left is responsible for establishing communications with the unit on the right. The commander of a unit positioned behind another unit establishes communications with the forward unit.
- Restoration. Regardless of the responsibility, all units take prompt action to restore lost communications.

AREA OF OPERATIONS

2-93. Adjacent commands must maintain communications with each other to ensure coordination of the combat effort. When facing the FLOT (left-to-right relationship), the command on the left establishes communications with the command on its right. In a noncontiguous AO, units will establish and maintain communications with adjacent units that can mutually support or influence their operations.

RESTORING AND REESTABLISHING COMMUNICATIONS

2-94. Regardless of which unit is responsible for establishing communications, all units served by the system must help restore any communications system outage. This means that units will work from higher to lower and lower to higher to reestablish communications when interrupted and not wait for the network control station to solve the problem.

PLANNING CONSIDERATION

2-95. The communications plan supports the command requirements of a support relationship. To meet specific requirements commanders may modify their systems based on METT-TC (I). The S-6 assists the S-3 in developing the communications plan during the MDMP. There are factors to be considered during the planning phase, to include:

- Digital and voice networks. FA battalions use a mix of digital and voice radio networks as determined by the operational status of assigned equipment and mission variables. If digital capability is lost by the battalion or by one or more of the batteries, the voice networks can quickly become overburdened. The FA battalion communications plan must include plans for converting some digital networks to voice while continuing to support the remaining digital data networks. The communication plan should include a plan for reconverting to digital networks. It is extremely important to keep voice traffic off digital networks and vice versa. Develop and rehearse frequently a voice backup plan for each operation. Many of the details can be included in the unit tactical SOP.
- Planning ranges. Range capabilities vary with the method of communications, the type and model of equipment used, terrain, weather, and atmospheric conditions. Jamming also degrades communications range. Since rehearsal on the actual terrain and under the exact conditions is often impossible, experience, digital terrain tools, and thorough map reconnaissance are essential to proper estimation of communications ranges.
- System mixes. The factors of METT-TC (I) have different effects on the communications means. The preferred communications setup is any system or mixture of systems that will communicate the information with the least exposure to enemy electromagnetic warfare and not place total reliance on radio. A good communications plan maximizes the use of all available systems and backup plans to prevent over reliance on any one system. Address much of a FA battalion's basic communications planning in the unit's tactical SOP.

COMMUNICATIONS SECURITY CONSIDERATIONS

2-96. COMSEC should be part of each FA battalion tactical SOP. Effective COMSEC techniques include:

- Require authentication on non-secure networks if operating in the single channel mode of operation.

Note. proper authentication procedures can eliminate intrusion and imitative deception.

- Never mix plain and encrypted traffic on the same network. Doing so compromises the nature of the network, which makes interception and analysis easier for the enemy.

- Use secure equipment whenever possible. If the battalion is supporting a unit without secure capability, specify networks that will be unsecured and enforce secure discipline on all remaining networks.
- Limit transmissions to five seconds or less, if operating in the single channel mode of operation. This makes interception and direction finding more difficult.
- Work through jamming if possible. Report suspected jamming on a different network to supported higher HQ or the network control station immediately. Do not stop using the suspected network as this may tip the enemy that their jamming attempts were successful and friendly forces will not be able to pinpoint the jamming location if they stop and start jamming a new channel or frequency. Jumping networks should be a last resort. Remember that if jamming is bad enough to keep a unit from operating on a network, it may also keep many of the stations from receiving the signal to change frequencies. Disseminate anti-jam frequencies well in advance, so that subscriber stations can move to the alternate frequencies in sequence. Reduce susceptibility to jamming by using frequency-hopping radios.
- Schedule and use only authorized call signs from the automated network control device or SOI.

INTERNAL AND EXTERNAL COMMUNICATIONS NETWORKS

2-97. The FA battalion communicates through internal and external communication networks. The details on both internal and external networks follows.

Internal Networks

2-98. The FA battalion will require multiple internal networks for normal operations. The various networks that may be required for normal battalion operations include:

- Use battalion command (voice) network for command, collection, and dissemination of tactical information and intelligence. The battalion operations section is the network control station.
- Use battalion fire direction (digital) networks for tactical and technical fire direction from the forward observer through the FA battalion FDC to the controlling platoon FDC. Assign the fire direction networks according to the mission and the battalion's communications status, not necessarily one per platoon. However, a technique frequently used under ideal communications, is to assign a network per firing platoon, with the forward observers, FIST, maneuver battalion FSE, and battalion FDC spread evenly across the networks. In some operational situations, when platoons are firing units, it will be required to allocate a fire direction network per firing platoon. The network control station for all fire direction networks is the battalion FDC. Establish one or more of the networks as a voice network.
- Use battalion command (digital) networks for FS planning and coordination between FA elements, for mutual support unit operations, and for tactical and technical fire direction to R artillery units. The network control station is the battalion FDC. Establish the network as a voice network during degraded operations.
- Battalion operations and intelligence (digital) network are used for exchanging targeting, counterfire section, survey, meteorological data, information and intelligence within the battalion. These elements can include radars, target processing section, and survey teams. The network control station is the battalion S-3 section.
- Battalion administration and logistics (voice) network is used for coordinating battalion administrative and logistical matters. The battalion trains CP is the network control station. The FA battalion S-4, S-1, the FSC commander, and subordinate platoon leaders will operate in this network on a full-time basis. The firing battery commanders, 1SGs, or XO will operate in this network, as required.

External Network

2-99. The FA battalion may operate on several external networks. The actual number will depend on availability of communications assets, supported higher HQ task organization, and the division or corps organization with supporting brigades. The FA battalion may operate numerous external networks, to include as required:

- BCT (voice).

- BCT operations and intelligence (voice).
- BCT administrative and support (voice).
- FAB network (digital) as assigned.
- FAB operations and intelligence (digital), as assigned.
- DIVARTY network (digital) as assigned.
- DIVARTY operations and intelligence (digital), as assigned.
- BCT FS network (voice).
- Maneuver battalion FS network (voice).
- BCT FSE and battalion or squadron FSEs may also operate on a naval gunfire (voice) network.

COMMUNICATIONS TECHNIQUES

2-100. Communications operations must take advantage of all techniques to facilitate mission accomplishment. Communication operational techniques should be considered and employed to enhance the FA battalion command capability, which may include:

- Remote Transmitters. Using remote transmitters separates the radio frequency emitter from the CP or from other critical facilities. In addition, remote radios allow transmitters to be sited for optimum communications while allowing the user to position in locations better suited to survivability. Remote transmitters also minimize on-site or mutual interference while dissipating and reducing electromagnetic signature.
- Retransmission. The FA battalion should use retransmission operations to extend the area of coverage of a specific radio network or to reduce the electromagnetic signature of a position. Reduce radio frequency power output using a retransmission site at the CP or other location. Double overall, network ranges by the effective use of retransmission. Terrain and obstacles restrict the transmitting distances of frequency modulation and very high frequency transmissions. The positioning of radio equipment is often critical. Techniques for using frequency modulation retransmission include:
  - Conduct a map reconnaissance of the AO. The S-6, S-2, and S-3 should discuss retransmission operations during the planning phase.
  - Analyze the terrain for optimum communications; use the digital terrain tools to assist in this analysis.
  - Select primary and alternate locations for retransmission. Consider accessibility, security, and logistical support.
  - Arrange the timetable for site occupation and network operation.
  - Train operators on retransmission procedures.
  - Ensure users are aware of the tactical situation and how retransmission works.
  - Program additional key and delay time to allow radios to key up before transmitting.
  - Plan to use a nearby firing platoon, battery, FIST, or supported higher HQ FSE to relay messages. This capability is useful when direct communication with an element is not possible. Relay addressing should be established per tactical SOP or as identified in the SOI.
- Antenna Multiplexers. Using antenna multiplexers reduces the number of ground plane antennas required to operate multiple radios. The time required to align and tune these devices is considerably less than the time required to install multiple antennas. However, multiplexers also have several disadvantages, to include reduced communications range and significantly increased bit error rate for digital traffic. Note: the rate will vary for different frequencies.
- Directional Antennas. Directional antennas reduce electromagnetic signature in two directions while extending the range of the radio along the long axis of the antenna. Use directional antennas in single-channel mode, not frequency-hopping mode.

2-101. A robust digital and voice communications network that can transmit over an extended range is essential for successful operations. Interrupted communications include obstructions to line of sight, other systems operating in the same electromagnetic spectrum, atmospheric conditions, and enemy electromagnetic attack. Planning communications is increasingly complex and requires participation by every staff member, not just the S-6. Planning should include at a minimum:

- Include a detailed communications line of sight analysis (digital terrain tools or a communication modified combined obstacle overlay [MCOO]).
- Provide for alternate means of communications.

- Ensure subordinates understand the commander's intent so that they know what to do if communications are lost.
- Plan communications architectures in detail, including the use of retransmission, digital network linkages, and CP placement.
- Develop and distribute an overlay that depicts retransmission, digital network links, and command nodes in the brigade's AO. This communication overlay enables communications node and terrain management deconfliction, prevents fratricide, and provides for an increase in communication efficiency by reducing communications signature, profile, and request for information.
- Define the initial task organization and expected changes to establish and maintain the tactical internet.
- Follow proper signal and COMSEC procedures.
- Keep digital orders, overlays, and messages concise to avoid overloading the tactical internet and digital systems.
- Establish SOP for when and what communications will be transmitted digitally, and which will be transmitted by voice.
- Establish alternate communications procedures.

Commercial Lines and Cell Phones

2-102. Use commercial lines when approved by supported higher HQ. Consider securing commercial lines using devices like the secure telephone unit and limiting classified material sent over non-secure lines and on cell phones. Threat forces may rely heavily on local communications networks.

Sound and Visual

2-103. Sound and visual signals include pyrotechnics, hand-and-arm, flags, metal-on-metal, and sirens. Ensure the instructions for the use of signals are in the SOI or the unit SOP. Establish signals not included in the SOI in the SOP or in the OPORD. The battlefield will have many sound and visual cues that become increasingly important in complex and urban terrain. Commanders and staff planners must carefully determine how sound and visual signals will be used and authenticated.

Messengers and Liaison Officers

2-104. Use messengers between the CPs of higher and lower HQ in the event of communications failures or enemy jamming. Send liaisons to supported higher HQ to speed the passage of information between CPs. The use of LNOs becomes increasingly important as digitally equipped units operate with non-digitally equipped units. The LNOs provide access to the digital COP.

Frequency Modulation (voice) Communications

2-105. The FA battalion should not rely on digital communications alone. Digitization does not eliminate the requirement for maps and voice communications. Digitized systems facilitate collaborative planning and rapid dissemination of plans and orders. The FA battalion commander and staff must learn to use the automation systems extensively during the planning and preparation phase of any operation.

2-106. Whether to use voice or digital means for communication is a function of the situation and SOPs. Even though both systems are critical for effective command at all levels, voice may be the primary method for control.

2-107. Voice radio remains the primary means of communications after crossing the line of departure because it is more responsive, multiple stations can monitor the network, and parties convey emotion during the transmission, which is a critical tool in assessing and understanding the battlefield situation.

2-108. Voice is the primary method of communications when supported elements are in contact and time is a critical factor. The FA battalion commander and staff must remain sensitive to the difficulty and danger of using digital systems when units are moving or in contact and not expect digital reports under those conditions. The FA battalion commander and staff must continue to update digital databases and COP. Use digital systems for reporting combat information when not in direct fire contact. Company and troop CPs

serve as the critical link in turning the voice reports received by units in contact into the digital reports that generate the COP. Other general guidelines may include:

- Report initial contact at any echelon within the brigade on voice, as this alerts the network that a digital threat spot report will follow as soon as possible.
- Use voice for elements on the move (not in CPs), unless they can stop and generate a digital message or report.
- Initiate emergency logistical requests, especially CASEVAC requests, on voice with a follow-up digital report if possible.
- Transmit threat spot reports for reconnaissance elements moving or in contact on voice; their supported higher HQ should convert voice reports into digital spot reports to generate situational understanding.
- Submit calls for fire on targets of opportunity digitally or by voice.
- Submit digital planned calls for fire from FIST in the initial part of an engagement.
- Submit digital routine logistics reports and requests.
- Submit digital routine reports prior to and following combat.
- Submit digital orders, plans, and graphics, accompanied by a voice call to alert recipients that they have critical information. Additionally, the transmitting element should request a verbal acknowledgement of both receipt and understanding of the transmitted information by an appropriate Soldier.
- Submit voice obstacle and CBRN reports followed by digital reports to generate a geo-referenced situational understanding message portraying the obstacle or contaminated area across the network.

Chapter 3
Field Artillery Battalion Planning

This chapter provides an overview of the FA battalion planning process. Technological advancements in weapon lethality, target acquisition, information management, and sensor-to-shooter links have required improvements in the speed and efficiency of the MDMP. Planning helps commanders create and communicate a common vision among their staffs, subordinate elements, and unified action partners. This applies particularly to FA operations where reaction times are brief and crucial to overall mission success. FA battalion planning involves both the MDMP, which includes IPOE, and the products of the planning process. This chapter has three sections. Section I provides an overview of the MDMP and provides considerations for the FA battalion. Section II discusses FA IPOE and Section III addresses FA battalion rehearsals.

SECTION I – PLANNING PROCESS

3-1. The FA battalion commander and staff use the MDMP to guide their planning. They must tailor the MDMP to fit the tactical situation and the battalion's mission. The FA battalion integrates the battalion's planning process with the brigade's planning process. This includes development of the brigade OPLAN or OPORD, unit airspace plan, FS plan, and supporting FA battalion OPORD.

3-2. The FA battalion staff supporting a maneuver or other formation must conduct planning along with the maneuver brigade or supported staff. The FA battalion staff plans in parallel with the supported unit’s MDMP or specific planning process to inform each other’s planning efforts. While planning in parallel, the FA battalion staff will have a good concept for the artillery course of action (COA) once the supported commander approves the maneuver COA. The FA battalion staff must conduct prior planning with the supported staff to produce a supportable COA and to facilitate producing a quality FA battalion OPORD or FASP in a timely manner. The goal of the FA battalion staff is to produce an OPORD or FASP, synchronized with the maneuver COA simultaneously or as soon as possible after the publication of the supported unit OPORD. To accomplish this, the FA battalion staff must “artillerize” it’s MDMP to account for the unique roles and requirements of a FA battalion executing operations. For more information on the MDMP, see ADP 5-0 and FM 5-0. Table 3-1 on pages 42-46 provides an overview of how the FA battalion uses the MDMP for planning.

Table 3-1. Field artillery battalion planning process

STEP	*INPUTS*	*ACTIONS*	*OUTPUTS*
Receipt of Mission	• Higher HQ warning order or operation order, FS plan, FASP, and division order if parallel planning with a supported maneuver brigade, and unit airspace plan (if prepared) • Available or updated internal and external data.	• Evaluate higher HQ information-mission and task guidance focus. • Initiate running estimates, FS, FA operations, intelligence and target acquisition, command and control, sustainment, and data collection. • Reverse warfighting function analysis by staff. • Initial position area analysis and development. • Identify draft commander's critical information requirements. • Conduct time analysis.	• Initial FA task list. • Initial running estimates & briefs to FA battalion commander. • Draft commander's critical information requirements and requests for information. • Initial timeline for MDMP and rehearsals. • Initial commander's guidance • Warning order.
Mission Analysis	• Higher HQ (BCT, DIVARTY, FAB) operation order, FS plan, FASP, and division order if parallel planning with a supported maneuver brigade, and unit airspace plan (if prepared).	• Understand 2 higher HQ maneuver orders, FS plans and FASP. • Identify specified and implied tasks.	• Updated running estimates. • Critical shortage lists

Table 3-1. Field artillery battalion planning process (continued)

STEP	*INPUTS*	*ACTIONS*	*OUTPUTS*
Mission Analysis (continued)	• Facts and assumptions from higher, lower, supported, supporting, and adjacent elements, to include fire support element. • IPOE products (such as, modified combined obstacle overlay, situation templates). • Commander's critical information requirements. • Enemy COA from S-2. • High-value targets by phase or critical event. • Initial high-payoff targets (HPTs) from the maneuver formation's mission analysis. • Draft fire support tasks (FSTs) from the maneuver formation's mission analysis. • Initial target list worksheet (TLWS) from the maneuver formation's mission analysis. • Outputs from previous step. • Internal and external replies to commander's critical information requirements and requests for information.	• Identify commander's critical information requirements. • Organize and analyze facts. • Translate facts and status of FS, FA, and target acquisition assets into capabilities, limitations, and constraints. • Analyze effects of IPOE on -FA and target acquisition. • Develop draft FA support tasks. • Refine running estimates, FA, operations, intelligence, target acquisition, command and control, and sustainment. • Initiate target value analysis. • Identify potential wargaming and rehearsal aids (for example, models, tables, maps, sketches, and audio-visual equipment). • Identify non-combatants to be protected and critical or cultural infrastructure to be preserved. • Refine rehearsal plan (such as, timelines, communications, control, and database requirements). • Develop mission analysis brief.	• Artillery-focused IPOE products (for example, modified combined obstacle overlay, in direct fire specific HVTL, situation templates, and enemy courses of action). • Initial PAA and radar position overlay with range fans. • Impacts of weather on artillery. • Commander's critical information requirements, request for information • Restated mission. • Specified and implied tasks. • Identify essential fire support and FA tasks. • Commander's guidance and intent. • Mission analysis brief. • Initial movement; command and control; sustainment; fires (fire control and schedules); and intelligence, surveillance, and reconnaissance plans and concepts. • Updated timelines. • Warning order.

Table 3-1. Field artillery battalion planning process (continued)

STEP	*INPUTS*	*ACTIONS*	*OUTPUTS*
Course of Action Development	• See outputs from previous step. • Higher HQ updates (BCT, DIVARTY, FAB). • Internal and external replies to commander's critical information requirements and requests for information. • Higher HQ (BCT) course of action with refined EFSTs/EFATs and TLWS. • Higher HQ (BCT) draft FSEM and AGM. • Higher HQ (BCT) proposed FA position areas. • Higher HQ (BCT) initial unit airspace plan (UAP).	• Develop FA battalion courses of action in synchronization with BCT, DIVARTY, FAB courses of action. • Identify FS and FA decision points and firing unit and fire support element options. • Determine where to find and attack enemy formations associated with EFATs. • Identify high-payoff targets in those formations. • Quantify desired effects for EFSTs and develop the initial EFATS. • Plan decide, detect, deliver, and assess methods for FA tasks to include triggers. • Integrate triggers with BCT, DIVARTY, FAB course of action. • Allocate assets to acquire and attack. • Develop draft targeting and fire plans products. • Identify FA and target acquisition position areas, routes, movements, and timing options. • Identify FA trains and sustainment options (such as, ammo distribution and resupply options). • Use battle calculus to test feasibility. • Refine intelligence, surveillance, and reconnaissance plan. • Define airspace requirements, and any desired FSCMs and ACMs. • Develop control measures to safeguard non-combatants and critical or cultural infrastructure	• Course of action decision matrix. • Refined modified combined obstacle overlay and situation template. • Detailed task organization. • Refined running estimates. • Refined risk estimate. • Refined commander's critical information requirements and request for information. • Refined fire support and FA tasks to include essential fire support and FA tasks. • Refined fires paragraph BCT operation plan and FS plan. • Refined FS plan and annex: • Refined FS execution matrix. • Refined target list and overlay. • Refined target synchronization matrix or modified target synchronization matrix. • Refined High-payoff target list, attack guidance matrix, and target selection standards. • Draft BCT FASP or FA battalion operation plan or order: ▪ Draft FA support matrix. ▪ Draft Fires schedules. ▪ Draft RDO and ICP. ▪ Finalize FSCMs for fires planning files, and ACMs for Unified Action Partners supporting each COA.

Table 3-1. Field artillery battalion planning process (continued)

STEP	*INPUTS*	*ACTIONS*	*OUTPUTS*
Course of Action Analysis War gaming Course of Action Analysis and Comparison	• See outputs from previous step.	• Targeting decisions: refine high-payoff target list and target synchronization matrix input to the higher HQ (BCT). • Wargame the FA battalion course of action or draft operation order/FASP versus enemy courses of action. • Supported BCT course of action and integrated FS plan(s) versus enemy courses of action. • Modify or refine inputs, as required. • Test and refine BCT FS plan or FA battalion operation plan or order. • Finalize running estimates, FS, FA operations, command and control, intelligence, target acquisition, and sustainment. • Refine and coordinate draft target lists, schedules of fires, and schedules of targets to the higher HQ (BCT). • Refine and finalize commander's critical information requirements. • Prepare or modify draft FASP or FS plan. • Finalize airspace requirement sand associated ACMs for each COA.	• Course of action decision matrix. • Refined modified combined obstacle overlay and situation template. • Detailed task organization. • Refined running estimates. • Refined risk estimate. • Refined commander's critical information requirements and request for information. • Refined EFATs. • Final Drafts: • Refined Fires paragraph BCT operation plan/FASP and FS plan. • Refined FS plan and annex: • Refined FS execution matrix. • Refined target list and overlay. -Target synchronization matrix. • Refined High-payoff target list, attack guidance matrix, and target selection standards. • BCT FASP or FA battalion operation plan or order: • FA support matrix • Fires schedules • RDO and ICP • Finalize FSCMs for fires planning files, and ACMs for Unified Action Partners supporting each COA.

Table 3-1. Field artillery battalion planning process (continued)

STEP	*INPUTS*	*ACTIONS*	*OUTPUTS*
Course of Action Approval	• See outputs from previous step	• Conduct BCT, DIVARTY, FAB, or FA battalion approval briefing. • FSCOORD presents analysis to brigade commander as part of staff. • FA battalion executive officer or operations officer presents analysis to FA battalion commander. • BCT FS plan or FA battalion operation plan or order/FASP briefed as part of each COA. • Brigade, DIVARTY, FAB, or FA battalion commanders' direct changes and approve courses of action as required.	• Approved or modified FA battalion courses of action. • Commander or executive officer issues FA battalion operation plan or order/FASP in conjunction with BCT operation plan or operation order/FASP and FS plan. • FA battalion guidance (for example, format, coordination, addressees, and timelines). • FA battalion staff and FS back briefs. • Issue final rehearsal guidance and information. • Issue warning order, as required.
Orders Production Dissemination and Transition	• See outputs from previous step.	• Finalize staff and other inputs and products. • Gather inputs, prepare and quality check final FA and FS products. • Verify receipt and understanding. • Gather and evaluate lower and higher feedback and rehearsal results. • Recommend post-production changes and updates, as necessary based on rehearsal results, feedback, and changes to the commander for decisions. • Prepare modified products, warning orders, and fragmentary orders to reflect changes and commander decisions.	• Issue FA battalion operation plan or operation order in conjunction with BCT operation order and FS plan. • Disseminate post-production changes and updates via warning orders and fragmentary orders.

ACM – airspace coordinating measure, AGM – attack guidance matrix, BCT – brigade combat team, COA – course of action, DIVARTY – division artillery, EFAT – essential field artillery task, EFST – essential fire support task, FA – field artillery, FAB – field artillery brigade, FASP – field artillery support plan, FS – fire support, FSCOORD – fire support coordinator, FSEM – fire support execution matrix, HQ – headquarters, ICP – information collection, plan, HVTL – high value target list, IPOE – intelligence preparation of the operational environment, MDMP – military decision-making process, PAA – position area artillery, RDO – radar deployment order, TLWS – target list worksheet, UAP – unit airspace plan

SECTION II – INTELLIGENCE PREPARATION OF THE OPERATIONAL ENVIRONMENT CONDUCTED BY A FIELD ARTILLERY BATTALION

3-3. The FA battalion staff, led by the S-2, must expand the supported higher HQ IPOE products, particularly the threat data, to focus on survivability for the FA battalion and the supported maneuver formation and mobility issues for the FA battalion. The S-2 must answer, "How can the threat and terrain affect my unit and how can the enemy's indirect fires operations effect the supported maneuver unit?"

INTELLIGENCE PREPARATION OF THE OPERATIONAL ENVIRONMENT PROCESS

3-4. The FA battalion must focus on the following steps when conducting IPOE. For more information on IPOE, see FM 2-0.

Define the Operational Environment

3-5. The FA battalion staff, led by the S-2, together with the commander and S-3, review the identified AO and area of interest to determine if any recommended changes are necessary based on the battalion's mission. The AO and area of interest focus the S-2's efforts, information collection, and the development of the radar deployment order.

Describe the Environmental Effects on Operations

3-6. This step includes weather analysis; MCOO; observation, cover, concealment; avenues of approach, obstacles, key terrain; and FA specific considerations. Unless parallel planning, the supported higher HQ normally provides the products that describe the battlefield effects. Refined products by the S-2 and staff accurately reflect the effects of the AO and area of interest on the battalion and its mission. The defining product in this step is the MCOO. It is a graphic depiction of an in-depth study of the battlefield area incorporating terrain and weather. Refinement of the MCOO, along with other products such as digital imagery, from an FA perspective, determining inter-visibility lines, identifying avenues of approach and potential PAA, and identifying key and decisive terrain.

Evaluate the Threat

3-7. The FA battalion S-2 analyzes threat templates that accurately portray how enemy forces execute their operations and how they react to current conditions. The FA battalion S-2 determines which enemy capabilities may significantly affect friendly FA operations and operations of the supported unit. Use common source data or other governmental agencies to develop a template if a doctrinal template is not available. The use of doctrinal templates that show how enemy doctrine dictates their tactical approach without terrain and weather constraints assist in providing answers to important FA questions, for example:

- What are the high-value targets for the enemy forces?
- What means of FS will the enemy use based on friendly maneuver force actions?
- Can the enemy FA and mortars range friendly forces?
- Where will enemy FA, mortar units, electromagnetic warfare capabilities, and counterfire acquisition assets position and reposition?
- When and how are enemy firing units being resupplied?
- What are the estimated emplacement and displacement times of the enemy's indirect fires systems?
- What is the enemy threat to friendly brigade support areas?
- Doctrinally, where will the enemy emplace persistent and non-persistent CBRN, obstacles, and mine fields?
- Identify the specific enemy UAS and counter UAS threat.

Determine Threat courses of Action

3-8. Concurrent with the development of friendly courses of action by the FA battalion staff, the S-2 analyzes the situation and event template. The S-2 will usually receive the supported higher HQ situation templates.

Normally, the situation templates do not address the concerns of the FA battalion. The S-2 should refine them to focus on specific FA issues, including enemy indirect fire systems and units down to the battery level. At a minimum, the S-2 should refine two situation templates. The first is the most probable threat COA, and the second is the most dangerous threat COA.

3-9. The process does not end when the FA battalion S-2 has produced the IPOE products. The S-2 uses their knowledge of the AO and area of interest in conjunction with intelligence feeds to update the IPOE products and advise the commander, S-3, and the supported unit on changes to the threat COA and impacts for the battalion and supported unit.

SECTION III – FIELD ARTILLERY BATTALION REHEARSALS

3-10. Rehearsals are an integral part of the planning process. An effective rehearsal both practices and tests the plan. The FA battalion staff translates modifications identified during rehearsals into verbal and written changes to previously published plans, orders, and even SOPs. Time availability is the critical element in conducting rehearsals.

FIELD ARTILLERY BATTALION REHEARSALS

3-11. The following information provides broad guidance and possible techniques. Time frames mentioned are rough estimates based on lessons learned, feedback from units, publications, and other published documents. Actual rehearsal techniques, schedules, and times will vary depending on the situation and unit SOP.

CONFIRMATION BRIEFS AND BACK-BRIEFS

3-12. FA battalion commanders, staff, and leaders give and receive confirmation briefs and back briefs. Commanders and staffs prepare in advance since confirmation briefs often occur immediately after the briefing or issuing of the OPORD. If time is limited, the FA battalion commander may have the XO and S-3 take some of the briefings from subordinate leaders. A supported higher HQ may also use this disseminated briefing technique. However, the FA battalion commander should try to give the briefing to the supported maneuver commander whenever possible.

COMBINED ARMS REHEARSALS

3-13. The supported higher HQ commander, the type of rehearsal, and the technique used will determine the extent of the FA battalion's involvement in a combined arms rehearsal. At a minimum, selected personnel from the battalion CP will participate in the combined arms rehearsal. When time is limited, the FA battalion may integrate some of its support rehearsals into the combined arms rehearsal. However, this should not interfere with the rehearsal. The battalion should rehearse critical tasks prior to the combined arms rehearsals.

FIRE SUPPORT REHEARSALS

3-14. FS rehearsals verify synchronization of the FS plan with the scheme of maneuver. They focus on the execution of EFSTs and the FS execution matrix, the effectiveness of FS coordination and ACMs, and the timing and synchronization of FS efforts. FS rehearsals cover all EFSTs (including EFATs) or when time is limited, the ones designated by the supported commander as most important.

3-15. Conduct the FS rehearsal prior to the combined arms rehearsal or after the combined arms rehearsal, to reinforce previous rehearsals. The FS rehearsal focuses on the functioning of the FS chain and preparation for the combined arms rehearsal.

FIELD ARTILLERY TACTICAL REHEARSALS

3-16. Tactical rehearsals ensure the FA battalion OPLAN or OPORD properly plan and synchronize FA tactical fire control, movement, and key sustainment operations. FA tactical rehearsals focus on areas, to include:

- Tactical execution of an EFAT tied to an EFST, the FASM, schedules of fires, and schedules of targets - primary and backup methods.
- Tactical fire control and mission routing procedures.

- Clearance of fires requirements and procedures.
- Commander's attack criteria and priority of fires considerations.
- Effectiveness of FA movement and positioning plans, primary and alternate, for firing, control, and sustainment elements.
- Targeting, counterfire, and SEAD operations.
- Mutual support and continuity operations.
- Communications requirements to include use and positioning of retransmission equipment and use of voice versus digital.
- Survey requirements.
- Timing and synchronization of FA efforts with maneuver and airspace operations.
- Enemy prisoner of war procedures.
- Meteorological requirements.
- Resupply triggers, especially for low-density munitions.

FIELD ARTILLERY TECHNICAL REHEARSALS

3-17. FA technical rehearsals ensure that the supported higher HQ FS plan and FA battalion OPLAN or OPORD/FASP properly addresses FA technical fire direction and to exercise the technical fire direction process. FA technical rehearsals focus on areas, to include:

- Technical execution of FA tasks and the FASM to include digital links and primary and backup methods (for example, FDC). Rehearsal of backups includes evaluation of reactions to catastrophic loss of a FDC (battalion or battery) and loss of digital or voice capability.
- Integration of tactical and technical fire control processes and computation of firing solutions, to include the communication and interaction among the FSEs, fire direction, and firing elements.
- Identification of technical fire direction issues to include high-angle fire, minimum safe distance, target, ammunition, range, FSCM and ACM conflicts.
- Digital database verification to include setup, communications, positions, FSCMs, ACMs, target and attack guidance, mission routing and intervention points, target list, and scheduling data.
- Digital continuity of operations to include actions for minor and catastrophic failure.
- Digital interface requirements to include fire direction system, primary computer system version differences, and any other digital systems including the tactical air integration system.
- Integration of voice and digital operations, to include backup plans.

FIELD ARTILLERY SUSTAINMENT REHEARSALS

3-18. Sustainment rehearsals verify and reinforce FA sustainment planning, synchronization, and ensure that the FA battalion OPLAN or OPORD and FASM, address sustainment tasks. FA sustainment rehearsals focus on areas, to include:

- Sustainment required for execution of EFATs and the FASM.
- Positioning and movement of the battalion trains.
- Ammunition distribution, positioning, expenditure, and resupply.
- Maintenance and recovery operations.
- Refueling and resupply requirements.
- Medical treatment and evacuation procedures.
- Contaminated routes, and decontamination sites.
- Water requirements.

INTEGRATED REHEARSALS

3-19. Units may integrate information collection, fires, and FA tactical, technical, and sustainment rehearsals to maximize use of limited time. The commander will determine the amount of focus placed on each major area of the integrated rehearsal, to include at a minimum:

- EFST planning.
- HPTs (for example, number, location, purpose, and priority).
- Primary and alternate triggers, observers, and sensors.
- Unit that will deliver fires.

- Attack guidance (for example, shell-fuze combination, number of volleys, and units to fire).
- Method of engagement (for example, time on target, at my command, or when ready).
- Time-space relationship between unit response time, duration of fires, and scheme of maneuver.
- Mission thread from the observer or sensor to the firing unit for each task.
- Primary and backup digital communication links (for example, supported unit, observers [ground and air], FSEs, FDCs, howitzers, radars, and intelligence assets).
- Correct solution.
- Attack methods (for example, shell, fuze, and unit).
- Intervention points in automated FS systems.
- Correct function of mission routing information.
- Coordination and deconfliction of targets, as required.
- Key actions that support each phase.
- Movement requirements, especially the trigger events that initiate moves and their relationship with EFATs/EFSTs (for example, survivability move criteria).
- Time-space relationships between EFATs/EFSTs and movements to ensure units are in position to mass during critical periods and verify the terrain management plan.
- Logistic requirements, especially critical sustainment tasks.
- FSCMs, ACMs, and coordination requirements for critical targets.
- Priority of fires during each phase.
- Digital database.

Chapter 4

Detect and Locate Surface Targets

The detect function translates target priorities developed during the MDMP into information collection, and target acquisition taskings contained in the OPLAN or OPORD and its annexes. The S-2 is the primary staff section coordinating the effort to locate and identify HPTs. The S-2 oversees this effort and directs the tasking of acquisition assets against appropriate targets. Artillery and mortar WLRs are organic to the FAB and cannon FA battalions, but not organic to HIMARS battalions. Information collection and target acquisition assets internal or external to the FA battalion may acquire targets engaged by the FA battalion. Section I begins with a summary description of support from information collection and target acquisition assets external to the FA battalion. Section II describes support to the detect function provided by WLRs.

SECTION I – INFORMATION COLLECTION AND TARGET ACQUISITION

4-1. Information collection and target acquisition are critical aspects of detecting and locating surface targets. Details of information collection and external target acquisition assets follow.

INFORMATION COLLECTION

4-2. Artillery target intelligence can come from many sources, which include:

- Direct observation by special operations forces, scouts, and forward observers.
- Electromagnetic intelligence sources such as radio frequency intercept systems.
- Human intelligence sources.
- WLR.
- UAS.
- Higher HQ and joint sources.
- Maneuver formations down through the squad level.

4-3. The S-2 is the staff representative responsible for coordinating the collection management effort to detect HPTs accurately enough to engage them, as identified in the decide function. The detect function primarily entails execution of the supported higher HQ information collection plan. There is an S-2 element at brigade and one at each subordinate battalion HQ including the FA battalion.

4-4. FA battalion FS coordination and observation entities located with the supported unit play a significant role in the detect function. The FSE is the BCT CP functional cell responsible for the collective and coordinated use of army indirect fires and joint fires (including electromagnetic attack). FSE capabilities include:

- Planning, integrating, and synchronizing lethal FS into the BCT operations.
- Integration of available nonlethal capabilities into targeting.
- Managing counterfire operations.
- Battalion FSE. FSEs provide a FS coordination capability for the maneuver battalion and brigade engineer battalion. The FSE assists the battalion in executing its portion of the BCT's scheme of fires. Through its AFATDS, the FSE provides the company FIST digital linkage to the battalion or squadron mortars as well as the FA battalion and FS assets available at higher levels.
- Company and troop FIST. Provide the maneuver companies or troops with FS coordination, targeting, terminal control, and combat and effects assessments capabilities. Each battalion FSE has subordinate FIST that support each maneuver company. The FIST typically operates from a FS vehicle possessing a target acquisition and communications suite with the capability to designate for laser-guided munitions. The battalion commander can direct that FIST be task organized within the battalion or squadron based on mission variables of METT-TC (I) and employed according to an observation plan where they can best acquire targets in support of the operation.

- A JFO is a trained service member who can request, adjust, and control surface-to-surface fires, provide targeting information in support of CAS, and can perform terminal guidance operations. The capability to have a JFO down to maneuver company level is an Army requirement. The Army JFO requirement is one JFO per maneuver platoon. Personnel trained as a JFO may be assigned or selected for duty, to include:
  - Company FSO.
  - Company FS NCO.
  - Platoon forward observer.
  - Member of a scout or reconnaissance organization.

4-5. Platoon forward observers. Forward observers are assigned to the FIST supporting each infantry company. Equipped with target acquisition devices to accurately locate targets and communications necessary to forward targets to AFATDS, the forward observers are the primary observers in the companies. They are normally collocated with the platoon leaders. They provide target refinement, execute planned fires, and request fires for their supported platoons. The forward observer may direct CAS in emergencies where JTAC personnel are not available.

EXTERNAL TARGET ACQUISITION CAPABILITIES

4-6. The BCT S-2 section has the additional capability to coordinate with external agencies to utilize tactical information collection capabilities. In all actions, the brigade CCIRs drive the information collection effort.

4-7. The division cavalry squadron has a HQ troop and three cavalry troops which can be designated to support BCT operations. The troop task organization has small UAS in each troop; and a FSE in the HQ and HQ troop, which may include an Air Force tactical air control party.

4-8. Selected other information collection capabilities include:

- A CBRN reconnaissance and surveillance platoon in the BCT.
- *Civil reconnaissance* is a targeted, planned, and coordinated observation and evaluation of specific civil aspects of the environment such as areas, structures, capabilities, organizations, people, or events (JP 3-57). Civil reconnaissance verifies or refutes civil information, supports operational environment assessments, and detects and monitors changes in the civil component. It is conducted over time through routine engagement and patterned civil observance using active and passive sensors, virtual sensors, and other means. (For more information on civil reconnaissance see FM 3-57).
- Engineer reconnaissance obtains information about infrastructure, terrain, or threat. This may include data on obstacles, gap crossing sites, airfields, bridges, tunnels, roads, and trails. Engineer units do not have designated reconnaissance teams. Engineer reconnaissance is directed and task-organized based on mission requirements using assets that would otherwise support other engineer mission (ATP 3-34.81).
- Each maneuver battalion has a scout platoon consisting of three scout sections. The BCT may recommend tasking a specific requirement to a subordinate unit's scout platoon, but normally tasks the subordinate battalion for the requirements and lets the maneuver battalion commander allocate resources internal to the organization.
- BCT UAS can locate and identify major enemy forces, moving vehicles, weapons systems, and other targets that contrast with their surroundings. In addition, UAS can locate and confirm the position of friendly forces, or the presence of noncombatants. UAS perform reconnaissance, security, target acquisition, or battle damage assessment. UAS sections are organic throughout the BCT. These UAS provide real time imagery to the CP for analysis and retransmission over digital systems. One use of the UAS is for advanced party operations when conducting reconnaissance selection and occupation of the position.

4-9. When available, employ Air Force JTACs forward with each maneuver company. They should be tasked organized and positioned where they can best support the operation.

4-10. Each maneuver company is typically provided a FIST with the capability to laser designate targets for precision-guided artillery and joint munitions. The FIST performs EFSTs in support of maneuver operations, aiding in the employment of supporting mortars and CAS. Specify supporting FA fires allocated to maneuver battalion operations in EFSTs that were identified in top-down fire planning. Integrate this support into

maneuver operations as part of the scheme of fires for BCT operations with specific synchronization instructions reflected in the appropriate attack guidance matrix.

4-11. Initiate the employment of the BCT fires during maneuver operations through a variety of sensor cues resulting from deliberate and incidental contacts. The maneuver battalion has numerous sensors available for executing its information collection mission. Tactical UAS, ground sensors, and counterintelligence personnel available to the commander to augment internal assets. The company commander can also request external assets available from Army forces, joint, and national levels as well.

4-12. Every system or combination of systems employed by the maneuver unit is capable of reporting the presence of the enemy and therefore is a source for the initiation of FS. In many cases, the accuracy in target location of an initial contact may not be sufficient to generate an immediate fire mission or other tactical response. The BCT FSE must be aware of this and ensure its targeting elements work closely with the maneuver battalion FSE to see that minimum target selection standards are met or cross-cue other sensors to gain an accurate target location.

4-13. During the counterfire fight, counter-reconnaissance fight, or the close fight the FA battalion should be the primary recipient of direct sensor inputs. This allows the FA battalion to fully exploit the AFATDS digital architecture to provide timely and responsive FS. The BCT FSE must constantly monitor execution of current operations and consider the full range of both lethal and nonlethal attack options to meet the commander's guidance in achieving desired effects on enemy formations or capabilities.

SECTION II – FIELD ARTILLERY BATTALION TARGET ACQUISITION

4-14. This section on FA battalion target acquisition consists of an overview, WLR employment, which includes radar zone management, radar cueing, radar movement, and radar tasking. Details on this information follows.

OVERVIEW

4-15. Sound tactical planning effectively covers the supported higher HQ AO with target acquisition assets. Conduct target acquisition planning at tactical levels of the supported higher HQ as an integral part of the MDMP. This fully integrates target acquisition assets into combined arms operations. The FA battalion HQ is responsible for employing its organic target acquisition assets in accordance with the supported higher HQ OPLAN/OPORD.

4-16. The goal of the target acquisition effort is to provide timely and accurate information to enable the attack of specified targets. Target acquisition systems and equipment perform the key tasks of target detection, location, tracking, identification, and classification.

4-17. The FA battalion S-2, with the counterfire operations section, assesses WLR acquisitions and information collection reports to support targeting. The FA battalion uses this focused intelligence in the development and execution of counterfire.

4-18. UAS support to the FA battalion enhances the battalion's capability to conduct close support fires, counterfire, and SEAD operations. The brigade commander may direct attachment of a UAS mission planning and control section to the target acquisition platoon of the FA battalion. The mission planning and control section consists of a ground control station and associated personnel and supporting equipment. The mission planning and control section receives the mission, plans, and controls the aircraft, and reports information.

4-19. The FA battalion S-3, S-2, and targeting officer will provide the mission planning and control section with the information required to plan and execute the UAS mission. UAS supporting the FA battalion contribute to the overall information collection and target acquisition picture. Primarily task the UAS for FA battalion target acquisition and battle damage assessment. The FA battalion supported by a UAS has enhanced ability to:

- Acquire and locate enemy strike assets to facilitate counterfire.
- Acquire and transmit target data to support the attack of HPTs and targets of opportunity.
- Provide target designation.

- Provide surveillance.
- Provide battle damage assessment.

4-20. Access to a UAS by the FA battalion allows the supported higher HQ reconnaissance elements to concentrate on collecting combat information while FS personnel directing the UAS provide support with target acquisition, fires, and battle damage assessment.

4-21. The target acquisition platoon organic to the FA battalion provides acquisition of threat mortar, artillery, and rocket systems to enable counterfire operations, and generate artillery target intelligence. The platoon consists of a counterfire operations section, a survey capability, and a mix of AN/TPQ-53 and AN/TPQ-50 WLRs depending upon the type of BCT.

4-22. The platoon deploys in whole or part within tailored force packages. Once in theater, the FA battalion controls the employment of the platoon, and any additional WLRs attached or augmenting the supported higher HQ. WLRs require external assets for security. The survey team provides common survey for FA firing units and mortars when assets are available.

4-23. The (ad-hoc) survey team provides a common grid that will permit the massing of fires, establishes SCP as directed, and near stake and far stake data for the WLR for transmission of target data from one element to another. The survey capabilities consist of an improved position and azimuth determining system global positioning system team.

4-24. The counterfire operations section is responsible for providing responsive and accurate counterfire. The counterfire operations section consists of the following personnel-a targeting officer, the senior FA targeting NCO, two targeting NCOs and two target-processing specialists. These individuals work together with the battalion intelligence officer and staff.

4-25. The primary mission of the WLR is to detect and locate enemy mortars, artillery, and rockets quickly and accurately enough to permit immediate engagement. The AN/TPQ-53 provides for extended range or the flexibility to do 6400 mil (360 degree) operations. The four organic AN/TPQ-50 radars can detect mortars over a 6400 mil (360 degree) search sector. For more information on FA WLRs, see ATP 3-09.12.

RADAR EMPLOYMENT

4-26. The FA battalion S-3, S-2, and the target acquisition platoon leader, in coordination with supported higher HQ and FSEs of supported units, must work closely to ensure effective management of organic, assigned, or attached radars. Considerations for radar positioning are mission, survivability and security, survey requirements, communications, movement, orientation, and cueing of radars.

4-27. Mission accomplishment is the primary consideration in selecting a radar position. The secondary consideration is survivability and security. WLR position selection starts with the FA battalion S-2 and targeting officer's terrain analysis. They use the MCOO, terra base, radar positioning analysis system, and the situational template developed and refined by the intelligence section. They conduct map reconnaissance and select several potential positions. After detailed analysis of these positions, they recommend primary, alternate, and supplemental positions to the FA battalion S-3, who accepts, rejects, or modifies the positions. Key considerations when positioning WLR include:

- Does the position support the commander's intent?
- Where are the enemy's indirect fire systems, or where will they most likely be located?
- Where will the enemy focus indirect fires?
- Can the radar acquire targets throughout the supported force AO?
- What are the electromagnetic warfare, ground, and air threats to the radar?
- Does the position effectively maximize the radar's range capabilities while simultaneously minimizing the risk of enemy target acquisition?
- Does the position offer a screening crest?
- What is the track volume and aspect angle?
- Do radar positions complement each other?
- Does the position offer good communications with the FA battalion?
- Does the position consider future operations and movement?
- Where are the radar alternate positions and supplemental positions?

- Where are the positions of other friendly units?
- Is the radar on a high-speed avenue of approach that could potentially make it vulnerable to rapid advancement by the enemy?
- Avoid likely areas for CBRN hazards or enemy air assaults?
- Is the route clear of enemy, chemicals, and mines?
- What is the friendly scheme of maneuver?
- What are the emplacement and displacement times for the various radars?
- What are the movement times between the positions?

4-28. When possible, the target acquisition platoon leader or platoon SGT should reconnoiter the sites and provide input to the FA battalion S-3. The FA battalion S-3 coordinates the radar's position(s) with the supported higher HQ or other supported FSEs and S-3.

RADAR ZONE MANAGEMENT

4-29. Radar zone management involves the use of both sectors of search and various types of zones. The FA battalion S-3, S-2, targeting officer, target acquisition platoon leader, and the supported higher HQ FSEs work together to ensure that sectors and zones adequately support the overall force counterfire plan. Radar Zone Management Planning Sequence

4-30. The FA battalion S-3, S-2, targeting officer, target acquisition platoon leader determines considerations for successful zone planning to include:

- Prioritize operational sector and scheme of maneuver events for zone planning based on the commander's intent and guidance.
- Develop zones during the COA development and the wargaming process.
- Approve and allocate zones to battalion or squadron FSEs that support the scheme of maneuver, meet the commander's priorities for protection, and facilitate the engagement of HPTs.
- Develop and assign decision points as triggers for the execution of planned zones.
- Incorporate decision points (triggers) for planned zones and radar movement into the appropriate decision support template, synchronization and execution matrices, and information collection plan.
- Ensure nominated zones facilitate the scheme of maneuver.
- Rehearse planned zones (for example, radar movement, zone activation, and counterfire battle drill) during combined arms, FA technical, and FS rehearsals.
- Refine zones during execution as the IPOE improves or the supported higher HQ scheme of maneuver changes.
- Develop positioning guidance for the radar that optimizes the probability of acquisition and supports the coverage of planned zones.

Radar Zone Management Responsibilities

4-31. The FA battalion responsibilities for radar employment and zone management must be established to focus the planning process and execution. The FA battalion commander is ultimately responsible for counterfire and zone management. The commander relies on the S-3, S-2, and targeting officer for counterfire and zone management responsibilities. For more information on zone management, see ATP 3-09.12.

RADAR CUEING

4-32. The FA battalion S-2 and the targeting officer will establish cueing guidance to include authorized agents, communications links, and conditions under which the radar may be cued. Publish the information in the target acquisition tab in the FA appendix to the supported higher HQ FS plan or FA battalion OPORD. Cueing instructions are listed in the radar deployment order. For additional information on cueing, see ATP 3-09.12.

RADAR MOVEMENT

4-33. During the wargaming process, the FA battalion S-2 and S-3 decide when they want to try to force enemy indirect fire weapons to move and when accumulated cueing time can cause radar detection. They include these events as decision points on the decision support template. The S-2 or targeting officer moves

the radar based on factors of METT-TC (I) and the radar's accumulated cueing times. Moving the radar at a critical time in the battle may cause the supported unit to take heavy losses. When a radar moves, coverage must be coordinated with other organic, attached, assigned, or R battalion radars, if available. For more information, see ATP 3-09.12.

RADAR TASKING

4-34. There are several methods for specifying coverage for radar sections. Specify radar coverage by using the radar deployment order, the radar execution matrix, and the AFATDS radar deployment order format. All three methods provide the required information for conducting radar operations. For more on information on the radar deployment order, see ATP 3-09.12.

Chapter 5
Deliver Fires

This chapter focuses on the delivery of fires. The chapter has five sections. Section I covers the fire mission process, including tactical and technical fire direction, massed fires, and continuity of operations. Section II discusses various types of special fire missions. Section III provides information on strike and counterfire. Section IV discusses FA battalion support for SEAD operations. Section V discusses FA battalion meteorological and FA battalion survey.

SECTION I – FIELD ARTILLERY BATTALION FIRE MISSION PROCESSING

5-1. FA battalion functions directly associated with surface-to-surface attack encompass the fire mission process. Fire missions can be initiated by any sensor such as forward observers, air observers, WLRs or FSE. FA battalions normally do not perform airspace deconfliction; instead, the brigade FSE handles the process through connectivity with the brigade ADSE/AGIE. UAS may send their calls for fire directly to the brigade FSE when acting under BCT control. Radars and the counterfire operations section can also work at the brigade level. The FA battalion employment of indirect fires depend on:

- Accurately locating an appropriate target (target acquisition process).
- Initiating a call for fire into the FS system (the fire request).
- Analyzing the fire mission to determine the proper method of attack (tactical fire direction) in FA battalion and, sometimes, platoon FDCs.
- Transmitting the call for fire to the selected firing platoon FDC(s) that transmit the call for fire data to the firing element capable of technical computations of firing data or convert the call for fire into fire orders for the firing element (technical fire direction).
- Delivering the required ordnance on the target (deliver fires).
- Determining and reporting battle damage assessment.

5-2. To expedite fires, the unit can coordinate the use of various quickfire linkages, designed to facilitate rapid-fire mission execution, while achieving desired control. For example, a quickfire channel could be established from a FIST, through the battalion or squadron FSE, and then directly to the FA battalion FDC. For even faster response and more decentralized control, the FIST may send the mission directly to the FDC that will execute the mission. This is often used for priority targets and final protective fires. Quickfire channels can be used for any observer or sensor. Any brigade, battalion, squadron FSE or FA CP that is normally in the fire mission flow, but is bypassed during quickfire operations, should receive a notification of each fire mission through message of interest processing.

FIRE MISSION REQUESTS

5-3. The FA battalion digitally plans and executes fires as much as possible. However, the battalion may receive an immediate fire mission from a wide variety of sources, in both digital and voice formats. Higher or lower FSEs generate calls for fire. FSEs and other requestors send fire missions directly from the requestor to the battalion or the platoon FDC or through several elements in the system.

DIGITAL

5-4. FA and non-FA units send digital fire missions. Procedures and capabilities may vary depending on which digital systems are interfacing with one another. FA battalion commanders must ensure their units:

- Maintain technical expertise in a rapidly changing hardware and software environment.
- Find digital training opportunities involving digital equipment that the unit does not possess.
- Train to troubleshoot digital communications.

5-5. The unit should seek out training opportunities. Digital FA technical support rehearsals should thoroughly address digital interface issues and possibilities. Rehearse digital fire missions along the entire data link, under the same digital conditions anticipated for the actual operation (for example, extended

communications distances, surge digital traffic capacity, degraded operations, and alternate routes). For FA battalions this involves significant coordination responsibilities for both FS and FA digital operations.

VOICE

5-6. Use of voice may be necessary for immediate fire requests or during adverse communications conditions. FDCs must anticipate the circumstances and the types of voice missions they may encounter. The tactical solution and effects on the target should be essentially the same regardless of whether the mission is processed voice or digital. Missions from non-FA personnel may require innovative solutions to coordination, communication, and clearance of fires.

UNTRAINED OBSERVERS

5-7. Occasionally the FA battalion may need to process fire missions from untrained observers. Often these are critical requests where the requestor is under fire. Practice and rehearse the battle drill for untrained observers. Identify specific members of the FA battalion and firing battery FDCs as the primary handlers of untrained observer missions.

5-8. These personnel should possess good communications skills, patience combined with a sense of urgency, and the ability to remain calm in stressful situations. Practice untrained observer missions during major training exercises. For more information on untrained observer procedures, see ATP 3-09.30.

TACTICAL FIRE DIRECTION

5-9. The FDC primarily performs tactical fire direction. Tactical fire direction is the process that results in a fire order. A fire order is a FDO decision, made under supervision of the S-3, on whether and how to attack a target. The FDO considerations include:

- Location of the target -
  - Is it cleared to fire?
  - Is it within range?
  - Can the target be attacked?
- Nature of the target -
  - How large is it?
  - What is its degree of protection?
- Ammunition available -
  - Types of ammunition?
  - Quantity of ammunition?
- Are firing units available in range and ready to fire.
- Maneuver commander's guidance and tactical SOP.
- Request for fire -
  - What did the observer ask for?
  - Can the FA battalion provide it?
  - Should the FA battalion provide it?
- Munitions effects -
  - Proper ammunition?
  - Nature of the target and commander's guidance?
  - How should the target be attacked?
- Tactical situation -
  - When should the battalion fire?
  - Are special instructions required?
- ROE.
- FSCMs and ACMs.
- Collateral damage estimates.

5-10. The objectives of tactical fire direction include:

- Provide continuous, accurate, and responsive fires in all conditions.
- Maintain the ability to engage various target types over wide frontages.
- Mass the fires of available units.
- Engage a number and variety of targets simultaneously.

5-11. Tactical fire direction is either centralized or decentralized. The AFATDS enables each FDC to perform tactical fire direction, the FA battalion commander and S-3 must determine the mix of control to best meet the tactical situation, anticipate changes in control, and train FDCs to quickly adjust control when warranted.

CENTRALIZED CONTROL

5-12. Consider use of centralized tactical fire control when there are few firing units, when ammunition is low, during critical operations where the commander needs to exercise control, or when restrictive ROE are in place. The FA battalion will normally use platoon-based operations, but under maximum centralized control, the FA battalion may use battery-based operations (for example, each battery designates one FDC as the battery operations center.

5-13. Under maximum centralized control, fires requests will go through the supported higher HQ FSEs and FA battalion FDCs. AFATDS intervention point rules and guidance settings are restrictive. Each operations facility halts and reviews most fire missions with only pre-designated critical missions flowing automatically through the fire control system. The airspace environment is also likely to be non-permissive, and fires may require clearance for each individual mission, depending on commander's guidance, ROE, collateral damage restrictions, execution of close combat attack or CAS, and other airspace operations.

DECENTRALIZED CONTROL

5-14. Decentralized tactical fire control is used when maximum responsiveness and speed of execution is necessary. Under decentralized control, the FA battalion will usually use platoon-based operations. Some degree of decentralized control may be used even when resources are scarce if the brigade commander, with input from the FSO determines the risks inherent in reduced control are warranted.

5-15. Decentralized control involves the use of data linkages and quickfire channels that may bypass some or all the normal intervening operations facilities. Another method is to modify the AFATDS intervention rules and commander's guidance so that most missions flow through intervening operations facilities without stopping. Airspace is likely to have been pre-cleared, or procedural controls established to provide priority airspace to fires assets, with the commander desiring a more permissive environment and accepting a somewhat higher risk to airspace conflicts.

5-16. With decentralized control, FA battalion commanders, S-3s, and FDOs must closely monitor ammunition expenditures, and the number of rounds fired from current positions. The potential for ammunition shortages and forced survivability moves may increase under decentralized control.

QUICKFIRE CHANNELS

5-17. When significantly responsive fires are necessary, a quickfire channel may be established. This may be a voice or digital link. The quickfire channel establishes a direct link between the sensor and the shooter, or it may have one or more intervening control elements that evaluate and relay traffic. Quickfire channels can be established using existing networks, with the only changes being in the actual routing or reporting of information. Establishment of quickfire channels may also involve the use of alternate networks or communications methods.

5-18. Quickfire channels uses include:

- Counterfire to link WLR and a firing unit.
- SEAD to link aircraft, electromagnetic warfare, or information collection assets to a firing unit.
- Immediate suppression to link a FIST or other observer with a designated firing unit.
- Operations to link UAS with firing units.

5-19. Quickfire channel situations may involve supplementing the FA battalion with special communications equipment or coordinating nonstandard digital communications protocols. The FA battalion S-6 plays a

critical role in identifying and evaluating quickfire channels in support of FA battalion EFATs. Wargaming and rehearsals require detailed analysis, as testing of the communications links may not be possible until the event begins or immediately prior to the event. Requesting lessons learned information from other units that performed similar operations proves extremely beneficial in identifying potential problems that are not identified during planning and rehearsal.

AUTOMATED TACTICAL FIRE CONTROL

5-20. Automated systems digitally link the FA battalion internally and externally with supported higher HQ, subordinate agencies, and adjacent units. The system automates tactical fire direction and planning functions. The automated systems can process and disseminate information, to include:

- Fire plans.
- Target information.
- Fire missions generated from incoming target intelligence (for example, tactical fire direction).
- FSCMs and other forms of battlefield geometry.
- Ammunition and firing unit data.
- Messages of interest to other operations facilities, to include fire mission airspace coordination and munition flight path message to the higher HQs tactical air integration system and brigade aviation element.
- Meteorological and survey data.
- OPLAN, OPORD/FASP, fragmentary orders, running estimates, wargaming, graphics, and matrices.
- Movement control and logistics management.

5-21. The automated system tactical fire control program analyzes nominated targets, selects the method of attack, reviews available firing units, and selects the optimal firing unit(s) and munitions to engage the target. After analysis is completed and approved by the FDO through either intervention or pre-established standards; The tactical fire control program directs the delivery unit to attack the target.

5-22. The first step in providing for tactical fire direction involves establishing setup parameters in the computer. These parameters, entered prior to operations, consist of the tactical database and commander's guidance. Enter much of the general planning data at BCT and FA battalion level or higher. Disseminate this information downward with some modification at each level. Support Unit locations, ammunition counts, and other data is input at lower levels and forwarded to the supported higher HQ.

5-23. The tactical database consists of geometry, firing units, ammunition, and meteorological information. The tactical database includes information from unit plans and orders such as the supported maneuver unit's AO, FSCMs, ACMs, ammunition status, available firing units, firing unit locations, and atmospheric conditions. The single, most critical function of the FDC is tactical database management, enabling any FDC to temporarily take tactical control of the FA battalion and restore critical information to other FDCs.

5-24. The commander's guidance is simply the translation of the supported higher HQ or other supported maneuver commander's concept of the operation and scheme of fires into system language. The guidance includes information such as attack methods, priority zones, target types, shells, priority of selecting firing units, and exclusion of any firing units or shells and fuzes. Keep the commander's guidance current and accurate because the computer uses it to produce a fire order.

5-25. Automated systems contain information from the joint weapons effectiveness systems concerning the amount and type of ammunition and the optimum number of units to fire for a particular target. This information enables the computer to select the best ammunition for a particular target. Commander's guidance reserves certain ammunition for future use. It can be used to vary the joint weapons effectiveness systems' data in the computer. Once established, the computer implements the criteria without a delay in mission processing. In urgent situations, the commander's guidance may be manually overridden.

5-26. Based on the brigade commander's guidance for the different phases of the operation, the FDO, working with the FA battalion commander and S-3, and the brigade FSO, continually assess and adjust the automated system guidance settings. Changes in the tactical situation may make previously valid assumptions and guidance inadequate or even dangerously wrong. If anticipated ammunition fails to arrive, firing units are

not available, or if the threat changes, the automated system parameters must be adjusted. In a manual environment, this process is no less important.

5-27. In the automated tactical fire direction process, automated systems automatically prepare a request for additional fires whenever the FA battalion and any R unit cannot provide the volume of fire specified by the guidance settings. Automated systems automatically forward requests for additional fires to the supported higher HQ FSE and when applicable, to the division or corps FSE.

TECHNICAL FIRE DIRECTION

5-28. Technical fire direction converts weapon and ammunition characteristics (for example, muzzle velocities, propellant temperature, and projectile weight), weapon and target locations, and meteorological information into firing data. Howitzer sections use the results of this process for firing.

5-29. Cannon battalions perform technical fire direction on the howitzer and the FDC assumes a back-up technical fire direction role. During degraded mode, the FDC will exercise direct technical control of howitzers.

5-30. In FA battalions with howitzers that do not possess the capability to compute a technical solution the FDC exercises direct control and transmits firing solutions to each howitzer. FDCs determine technical fire direction for special missions such as registrations and special munitions. FDCs maintain a capability to compute technical data manually for trouble shooting data and in case of loss of automation capability.

MASSED FIRES

5-31. Massing available fires enables the FA battalion to inflict maximum damage on the enemy with a minimum expenditure of ammunition. Massed fires reduce the vulnerability of the firing unit to the enemy's target acquisition capabilities. Failure to mass fires may also give the enemy time to react and seek protection. A clear understanding of the supported higher HQ or other supported maneuver commander's guidance for fires and accurate guidance settings are key to determining how much fires are enough. Evaluate every mission received and employ sufficient massed fires to create the effects required.

5-32. The FA battalion should maintain the maximum feasible degree of centralized control over the firing systems. Commander's criteria are critical in managing the fires of the battalion. If clear guidance is developed and accurately entered into the automated systems, the computer can assume much of the burden of sorting the missions as they are received and assign them the appropriate priority.

5-33. Techniques available to the FDO for massing fires is the use of "time-on-target" or, for mobile targets, use of "at my command" in the fire order. With these techniques, the element of surprise is not lost since the delivery of fires is controlled. Survivability of firing units is enhanced, because mass fire techniques require fewer rounds to achieve the desired effects and because massed fires temporarily saturate enemy target acquisition devices. These two techniques for massing fires, when properly applied against appropriate targets, can maximize effects.

5-34. When more than one battery or platoon is used for massing fires use voice communications to execute digital fire orders. By using voice to execute an order, the battalion FDO can ensure that target(s) are engaged with the required number of firing units in a synchronized manner. Unit tactical SOPs should address the procedures for both digital and voice fire orders.

CONTINUITY OF OPERATIONS

5-35. Continuity of operations functions are built into the automated system software at the supported higher HQ fires elements, FA battalion FDC, platoon FDC, and battalion or squadron fires elements for rapid reaction to the loss of an operational element. This redundancy significantly reduces the need for complex and carefully orchestrated mutual support unit operations. Once the systems are initialized and the data-sharing paths established according to the operation, the computers will automatically, without human intervention, update other systems with which a particular station is sharing information. A loss of any single computer or group of computers in the automated systems may not have a devastating impact. The automated system at each node has the capability to serve as a backup system for any other node's automated system.

5-36. Operating in a degraded mode remains an effective backup. The FA battalion CP should thoroughly plan and rehearse transfer to manual backup operations.

SECTION II – FIRE MISSIONS REQUIRING SPECIAL CONSIDERATION

5-37. This section provides general information and guidance concerning fire missions that may require special consideration by an FA battalion. For more information on these missions, from the perspective of the observer, FDC, or fires element, see ATP 3-09.30.

IMPROVED CONVENTIONAL MUNITIONS

5-38. The 105mm and 155mm howitzers can deliver improved conventional munitions. These munitions include antipersonnel and dual-purpose improved conventional munitions. Anytime improved conventional munitions are fired, a percentage may fail to detonate depending on the meteorology, environmental, and terrain conditions.

5-39. Dud rates may increase in adverse weather and terrain conditions (for example, forests, mountainous areas, rocky or uneven terrain, snow, surface water, soft sand, marshy terrain, and high winds). Collateral damage considerations and ROE may limit improved conventional munitions employment.

ILLUMINATION

5-40. The amount of illumination ammunition required for a particular mission depends on the observer-target distance, the visibility, weather, and the size, width, and depth of the area to be illuminated. The FDC and the observer must coordinate selection of the proper illumination pattern and controlled rate of fire to maximize illumination effectiveness with minimal ammunition expenditure. Illumination missions may be lengthy and increase the firing unit's vulnerability to enemy acquisition and attack.

5-41. The FA battalion S-3 should consider directing platoons to fire illumination missions from supplementary positions as much as possible. During the planning process, the FA battalion S-3 should evaluate EFATs requiring coordinated illumination missions to determine their potential impact on the overall fire plan and on the priority of fires. Illumination may expose friendly forces to enemy observation. Consider the use of infrared illumination which allows illumination of target areas covertly without the glare of a conventional white-light flare. The empty canister may pose a down-range safety hazard to friendly forces and noncombatants.

SMOKE

5-42. The types of smoke projectiles used for FA delivered smoke include hexachloroethane and white phosphorus. Each has different characteristics and capabilities that must be considered in their employment. Atmospheric stability, wind direction, and wind speed are the major factors influencing the effectiveness of smoke. Significant changes in weather conditions require the FA battalion S-3 and FDO to determine potential impact on EFATs involving FA battalion delivered smoke (for example, wind, temperature, humidity and precipitation, terrain, and darkness).

WARNING

- Hexachloroethane and white phosphorous produce toxic fumes, may start fires, and the empty canisters may pose a down-range danger to friendly forces and noncombatants.

SCATTERABLE MINES

5-43. FA scatterable mines provides the commander an all-weather capability to quickly emplace minefields, which makes them best suited as situational obstacles. FA scatterable mines impede counterattacks, creating unmarked obstacles that are difficult to detect, deactivate and clear. There are currently two types of FA delivered scatterable mines: an area denial artillery munition antipersonnel mine and the remote antiarmor

munition system for use against lightly armored vehicles. Minefield angle, range, and target size all affect the fire order requirements for effective scatterable mines delivery.

5-44. Because scatterable mine missions can be lengthy missions to fire (10-30 minutes). The FA battalion S-3 should consider the time the unit would not be available to fire other missions and the increased vulnerability of the unit to enemy acquisition and counterfire. The S-3 should consider protection measures, such as using additional howitzers to decrease the time, firing the mission from an alternate (possibly hardened) position, or directing a survivability move after mission completion. The S-3 should consider a safety zone for each minefield.

NOTE. Commanders and staffs should consider ROE when planning a minefield.

EXCALIBUR

5-45. The M982-series Excalibur is a 155mm extended range, all weather, precision guided projectile designed for use with 155mm howitzers. Employing Excalibur helps reduce collateral damage, when engaging enemy elements inside urban structures and near non-combatants. Unitary precision and steep terminal trajectory offset enemy advantages gained by occupying compartmentalized complex terrain.

5-46. As a high explosive projectile (equivalent to the M107), the unit maintains lethality sufficient to engage targets common to open terrain. Due to its extremely high-altitude flight path, Excalibur requires significant pre-coordination. For more information on the employment considerations, capabilities, and options for Excalibur, see TM 9-1320-202-13.

PRECISION GUIDANCE KIT

5-47. The Precision Guidance Kit (PGK) is an all-weather, near precision, global positioning system guided fuze for digitized platforms. The PGK is intended for engagement of area targets and other targets normally engaged with high explosive munitions to correct for inherent ballistic errors.

5-48. The near precision capability (50-meter circular error probable) of the PGK increases the efficiency of the rounds fired at targets at mid through maximum ranges by reducing the number of rounds required to create the desired effects. The PGK makes small corrections of the ballistic flight path of the projectile to guide it to the intended target grid. The user initializes the PGK for guided flight via an electromagnetic portable inductive artillery fuze setter.

105MM PREFORMED FRAGMENT MUNITION

5-49. The 105mm pre-formed fragment munition is a 105mm high explosive projectile for use against personnel and light armored targets. The round is filled with 9,300 3mm tungsten spheres that provide enhanced lethality.

LONG-RANGE FIRES BATTALION MUNITIONS

5-50. Each battery of the long-range fires battalion requires special considerations for their munitions. Each one of the specific munitions will be addressed in the appropriate battery level publication.

DANGER CLOSE

5-51. Risk estimate distances allow the supported commander to estimate the potential danger to friendly troops. They are discussed as 0.1 percent probability of incapacitation (Pi) (one in 1,000 Pi). For further information on risk estimate distances and computations and casualty criterion, refer to ATP 3-09.32.

5-52. Ordnance delivery inside the 0.1 percent Pi distance will be considered "danger close." The supported commander must accept responsibility for the risk to friendly forces when targets are inside the 0.1 percent Pi distance whether the mission is CAS or a FA fire mission. For more information on danger close CAS missions see JP 3-09.3.

5-53. Danger close is included with the method of engagement when the predicted impact of a round or shell is within 600 meters (m) of friendly troops for mortars or artillery and 750 m for naval surface fires. The creeping method of adjustment (no adjustment greater than 100 m for mortars/artillery or 200 m for naval

surface fires support) will be used exclusively during danger close missions. Do not confuse the danger close method of engagement with risk-estimate distances or minimum safe distances or the DANGER CLOSE brevity term. (ATP 3-09.32)

5-54. In danger close missions the situation, type of ammunition being fired, the number of rounds, method of fire, Angle T, weather, and terrain conditions must be considered to ensure safe firing. Weather and terrain can affect certain munitions such as improved conventional munitions, smoke, illumination, and variable time fuzes. Dry, grassy terrain, spilled fuel, damaged vehicles loaded with ammunition, and wooden structures all present potential hazards. Mountains, trees, and urban terrain complicate danger close missions as steep slopes make observer adjustment more difficult to estimate, and crests or buildings can interfere with firing, stopping rounds or causing variable time fuzes to function early. High-angle fire can alleviate problems with crests or buildings, but may have greater dispersion (for example, probable error). Rocky terrain and hard surfaces present increased risk of ricochets, especially with flat trajectories. Whenever possible, the most accurate weapon system and shell, fuze, and charge combination should be used for danger close situations. Ground burst smoke or illumination can be used as marker to verify expected impact, observer, and target locations.

SECTION III – COUNTERFIRE

5-55. Counterfire is one aspect of the overall combined arms fight. Integrate and synchronize the counterfire fight with elements of the supported commander's plan. See ATP 3-09.12 for an in-depth description of counterfire procedures.

5-56. Effective counterfire includes the destruction, neutralization, or suppression of enemy weapons, to include electromagnetic warfare weapons such as jammers, target acquisition systems (for example, radars, electromagnetic warfare systems, and UAS), supporting C2, communications, transportation, and sustainment sites. However, the critical aspect in counterfire operations is information management, which involves two key areas: intelligence or target acquisition, and information processing. Friendly and enemy intelligence and target acquisition assets compete to find the various parts of each other's indirect fire system, analyze the information, decide the most effective method to attack, and disseminate orders to howitzers, jammers, and other attack assets. Accuracy of information and fires, speed, and effectiveness combine to determine the outcome of the counterfire battle.

RESPONSIBILITIES

5-57. The supported commander has overall responsibility for planning and conducting counterfire operations. The FSO and battalion targeting officer/counterfire officer advises the supported commander on the integration of counterfire into operations, the priority of counterfire within the overall operation, and basic counterfire priorities.

5-58. The FA battalion commander has overall responsibility for the FA battalion's execution of counterfire. In the FA battalion, the key counterfire personnel are the FA battalion commander, targeting officer, S-3, FDO, S-2, target acquisition platoon leader, and LNO (from a R FA battalion, if available). The brigade or supported commander receives input and recommendations from the FA battalion commander, battalion targeting officer, FSO, S-3, S-2, and other staff officers involved in counterfire operations. The brigade or supported commander issues decisions and guidance as necessary to direct counterfire efforts, to ensure effective coordination occurs. Supporting R, GS, and GSR FA units frequently receive this counterfire guidance through the supported higher HQ or other supported maneuver HQ.

5-59. A FA battalion's counterfire responsibilities vary dependent on the echelon, support relationship, and guidance from the supported commander. The FA battalion executes acquired counterfire targets or forwards them through fires channels for engagements by other FA or non-FA assets.

Field Artillery Role in Counterfire

5-60. The FA battalion usually plans counterfire within the supported higher HQ AO. If necessary, the FA battalion can give most of the counterfire fight to a R unit. The supported higher HQ has specific counterfire responsibilities, to include:

- Supporting the commander's protection priorities. State these priorities in terms of what assets, functions, and positions are critical to the supported higher HQ mission.
- Development, dissemination, and management of intelligence and order of battle information on the enemy's indirect fire system, including systems in the maneuver or supported unit's AO, as well as any within its area of interest that can impact the maneuver unit's mission.
- Indirect fire weapon systems (for example, mortars, cannons, rocket, and missile launchers).
- Target acquisition assets (for example, observers, radars, sound and flash systems, and electromagnetic intelligence).
- Control elements relevant to counterfire operations.
- Enemy indirect fire tactics.
- Enemy counterfire tactics (for example, use of lethal and nonlethal assets against friendly FA).
- Advising the brigade commander in establishment of attack guidance for counterfire targets.
- Coordination of counterfire operations with higher echelon counterfire operations.
- Integration of counterfire into the OPLAN in a complementary manner that helps enable maneuver operations.
- Achieving indirect fire superiority within the AO.

Division or Corps Counterfire

5-61. Division, corps, or other supported unit may task a BCT to observe named areas of interest and target areas of interest with its WLRs and target acquisition or information collection assets. The FA battalion commander must understand the unit's responsibilities in the larger counterfire fight and ensure efficient execution of assigned counterfire tasks.

Counterfire Planning

5-62. The FA battalion targeting officer with assistance from the battalion S-2 plan, coordinate, and synchronize the counterfire fight during the wargaming process. They recommend radar zones, decision points, cueing schedule, WLR positioning, and zone refinements. Some questions the staff must answer when planning counterfire operations include:

- What unit will conduct counterfire (for example, unit designated by the FA battalion S-3 on the FDO's recommendation, considering range, ammunition, and position)?
- What actions to take if multiple acquisitions occur simultaneously (consult HPT list, attack guidance matrix, and target selection standards)?
- What is the standard fire order (for example, the FDO recommends a standard fire order for the S-3's approval, ensuring it meets the commander's guidance)?
- What are the decision points for movement of the WLRs (for example, based on the phases of fire or accumulated cue time)?
- What are the decision points to refine or change the radar zones (for example, based on the phases of the operation)?
- Plan radar zones for all phases of the operation. What are the decision points for turning them on and off?
- Does the plan account for branches and sequels (for example, degrees of success or failure)?
- Does the plan call for when and when not to engage with counterfire?
- What are the criteria to meet the commander's intent (for example, how many enemy firing or launch platforms must be destroyed)?
- Can radar zones be pre-cleared within maneuver and airspace planning? For example, consider use of FSCMs and ACMs.
- What are the decision points for massing the battalion's fires on the enemy's surface-to-surface fires?
- What is the cueing schedule and what are the decision points to cue the WLR during the different phases of the operation?
- What is the availability of other sensors or capabilities from higher HQ that can provide overlaying coverage?

5-63. There are several critical decision points in the wargaming process. One of the most important involves forcing the enemy's indirect fire weapons to move, which allows the radar and the counterfire unit to move

without jeopardizing protection. Use suppressive, neutralization or destruction fires to force the enemy to move. Another critical decision arises when multiple target acquisitions occur simultaneously, the counterfire unit can become overwhelmed. Table 5-1 lists the options available when the WLR receives multiple acquisitions.

Table 5-1. Multiple target acquisitions

Type Targets	*FA Battalion with a Reinforcing Battalion*	*FA Battalion Without a Reinforcing Battalion*
Multiple Targets in Range	Reinforcing battalion engages target(s) and passes other target(s) to the FA battalion. Reinforcing battalion engages targets simultaneously. Reinforcing battalion engages targets sequentially.	FA battalion engages targets simultaneously. FA battalion engages the targets sequentially. FA battalion engages target(s) and passes the other target(s) to a FAB, DIVARTY, or a higher HQ fire support element for attack with other assets.
Multiple Targets in Range, but the FA Battalion is Involved in Missions with a Higher Priority	Reinforcing battalion engages target(s) and passes the other target(s) to a FAB, DIVARTY or a higher HQ fire support element for attack with other assets.	FA battalion passes the targets to a FAB, DIVARTY, or a higher HQ fire support element for attack with other assets.
Multiple Targets - Some Out of Range	Reinforcing and supported FA battalion engage the target(s) within range and pass the other target(s) to a FAB, DIVARTY or a higher HQ fire support element for attack with other assets.	FA battalion engages the target(s) within range and passes the other target(s) to a FAB, DIVARTY or a higher HQ fire support element for attack with other assets.
DIVARTY – division artillery, FA – field artillery, FAB – field artillery brigade, FS – fire support, HQ – headquarters		

REHEARSING COUNTERFIRE

5-64. Counterfire rehearsal synchronizes the counterfire fight with the supported higher HQ schemes of maneuver, fires, and communications. The FA battalion S-2 and targeting officer should rehearse the counterfire plan with the radar section, counterfire cell, intelligence sections, and necessary staff. The counterfire operations section should rehearse management of radar zones during different phases, using radio networks (digital and voice with cueing agents), decision points for movements and prepare-to-march-order, times to be ready to radiate (cueing schedules), and reporting accumulated radar radiation time.

SECTION IV – SUPPRESSION OF ENEMY AIR DEFENSES

5-65. This section provides a summary description of SEAD and FA battalion involvement in support of BCT or higher echelon operations. SEAD involves activities to neutralize, destroy, or temporarily degrade surface-based enemy air defenses by lethal and nonlethal means. Effective SEAD increases friendly aircraft survivability, enhances air operations, and facilitates rapid air superiority. This in turn supports the supported higher HQ ground maneuver and counterfire battles. Army SEAD operations are primarily designed to protect air assets near the FLOT or during cross-FLOT operations.

5-66. FSEs conduct SEAD planning, targeting, and coordination. Both ground force FSEs and aviation unit FSEs may be working together in planning and coordinating SEAD.

FIELD ARTILLERY BATTALION IN SUPPRESSION OF ENEMY AIR DEFENSES OPERATIONS

5-67. The FA battalion may be involved in overall SEAD planning and coordination. This may include planning and execution of both BCT and FA battalion EFATs/EFSTs. There may also be instances where supporting FA battalions with a support relationship of R, GSR, or GS plays a major role in the overall SEAD for an operation. In this situation, the FA battalion commander or the S-3 may go to the planning HQ or FSE and actively participate in the detailed SEAD planning. Supporting FA battalions may establish temporary liaison with the supported maneuver or aviation FSE during the planning and execution of critical SEAD missions.

5-68. FA battalion involvement in SEAD may include:

- Planning, conducting, or participating in SEAD programs designed to degrade and suppress enemy air defense assets throughout the supported higher HQ AO or to destroy, degrade, and suppress enemy air defenses within a specific area or corridor.
- Planning, executing, or participating in SEAD fire plans designed to support specific air operations.
- Providing immediate fires to rotary or fixed-wing aviation assets in support of an ongoing air operation.

5-69. A SEAD plan or program may involve several FA battalions, with cannon, rocket, or missile units providing fires along ingress and egress routes. Early identification of air routes and attack by fire positions is crucial in focusing target acquisition assets and intelligence templating in developing attack plans, and in coordinating air corridors and airspace coordination areas with FA positioning requirements.

5-70. One technique for localized SEAD is to prepare the attack by fire positions with FA indirect fires before occupation by the attack aircraft. Time separation is critical to prevent fratricide and to allow the aircraft to occupy the attack by fire positions unopposed. The unit should fire the attack by fire preparation based on an H-hour with the last rounds scheduled to impact from one to ten minutes before the aircraft arrive in their attack by fire positions.

5-71. When using indirect fires, to orient the attack aircraft to the engagement area, they begin firing as the aircraft arrive in their attack by fire positions. The engagement area preparation serves two purposes. First, it suppresses the enemy maneuver elements and therefore any enemy air defenses that are accompanying them. Second, the flashes and smoke from the munitions provide the aircrews with a visual reference of the location of the targets.

5-72. SEAD targets should be fired during egress in the same fashion as the ingress targets. Any targets discovered during ingress should be included in the egress program. The egress SEAD should be fired on-call if the attack aircraft can communicate with the FSO. If all communications with the aircraft is lost during the attack, then the egress SEAD should be fired on a planned time schedule. This allows the aircraft to know when it is safe to proceed down their egress route without being hit by SEAD fires.

Planning For And Conducting Suppression Of Enemy Air Defenses Operations

5-73. The FA battalion S-3 and FDO work closely with the appropriate FSE and maneuver S-3 to maintain current mission data. They review tasks involving SEAD for both the supported higher HQ and FA battalion to ensure firing units will be in position, on time, with the necessary ammunition to fire the missions. They review the relative priorities, potential mission conflicts, and enemy threats to better anticipate how alternative or backup plans must be executed. The FA battalion S-3 verifies triggering responsibility, authority to change mission factors, and who the firing unit must contact if problems develop. The S-3 briefs the FA battalion FDO and firing units (primary and alternate) in all aspects of the SEAD mission.

5-74. The FA battalion S-3 should consider established air corridors and airspace coordination areas when selecting firing positions. FA battalion S-3s should query FSEs early to identify air corridors and airspace coordination areas.

5-75. Evaluate the SEAD primary and backup triggers during rehearsals. Timing is important in SEAD fires to prevent fratricide of friendly air and obscuring the main target. Aircraft may arrive early or late, targeting information may not develop, or the FA firing unit may be unavailable, delayed, or involved in another mission. The FA battalion S-3 must decide whether to fire or abort the mission. Since aborting a SEAD mission can have serious impact on the air mission, wargaming analysis and prior coordination are critical to understanding the commander's guidance and priorities that should guide the FA battalion S-3's decision. The FA battalion commander may retain abort decision making authority on SEAD EFSTs.

5-76. Review air observer immediate fires request procedures. Individual requests by flight leaders (pilots) for SEAD support are treated as targets of opportunity. Add targets of opportunity to the current SEAD plan and fire during egress or during a re-attack of the target. The FA battalion S-3 and FDO must anticipate these missions and consider time, ammunition, firing units, and potential target types, and develop tentative fire orders for the more likely scenarios.

5-77. The FA battalion S-3 or FDO may have to recommend or make rapid adjustment to the SEAD fire plan to adjust for changing circumstances. The S-3 and FDO must carefully review the potential impact on other fires. Successful execution of adjustments depends on a complete understanding of the commander's intent, priorities, and the concept of operations. Thorough review of branches and sequels and accurate situational awareness (operational and sustainment) during planning will facilitate these adjustments during execution,

5-78. Use smoke or illumination to signal the lifting or shifting of fires to allow aircraft to attack. The FA battalion S-3 should ensure the use of these fires is well coordinated.

5-79. The FA battalion S-2 works closely with targeting officers in the FSEs and with S-2s in higher and subordinate echelons to ensure the battalion has the most current targeting information. If the battalion performs SEAD targeting, the S-2 must submit requests for SEAD related intelligence and targeting information as early as possible. Direct coordination with aviation, Air Force, and military intelligence elements may be necessary to get accurate information in a timely manner. The S-2 and targeting officer in the FA battalion may briefly move to the FSE responsible for planning SEAD.

5-80. SEAD targets include C2, air defense artillery weapons, and radars. Because of the ranges involved in supporting operations, target locations must be as accurate as possible. During coordination of SEAD targeting, FA battalion S-2s and S-3s should discuss target location accuracy with FSEs when they identify potential problems.

5-81. The sources for development of SEAD targets are primarily visual observation by ground and air observers, electronic and imagery assets, or templating techniques. Suppression of deep enemy air defense targets supporting air operations are provided primarily by Air Force tactical air reconnaissance flight reports, other aircraft reports, or satellite imagery available through division, corps and above collection managers.

5-82. The FA battalion S-6, working with the S-3, reviews tasks involving SEAD for unique communications and automation requirements. Due to the varied command and support arrangements, participants, and distances involved, unusual communications arrangements may be necessary. Retransmission of voice and digital relay may be necessary. Additional communications equipment may be warranted. Quickfire channels may be used. The FA battalion S-6 works directly with a ground or aviation force FSE to ensure communications arrangements are adequate. Alternate communications plans should be developed.

SECTION V – METEOROLOGY AND SURVEY

METEOROLOGICAL CONSIDERATIONS

5-83. The employment of cannon, rockets and missiles, the necessary dispersion of ground forces, the rapid displacement of both soldiers and materiel on the battlefield, and the efficient use of weapons are all affected by the weather. There is an urgent requirement for meteorological information within the FA, and accurate meteorological information must be obtained in more detail over increasing areas for dissemination to all commands. Accurate meteorological information is one of the base tenets for the five requirements for accurate predicted fire.

5-84. The FA battalion will provide meteorological information to all supported units. The FA battalion will apply current meteorological data for accurate artillery fires, battlefield forecasts, radiological fallout predictions, and target acquisition. This information is in the form of meteorology messages provided by the FA battalion HQ.

5-85. The FA battalion FDC will use the meteorological computer to process, retrieve, and disseminate meteorological data to all battalion assets that need it. The FA battalion is also the source and provider for all meteorological data needed by the supported units as directed by higher HQ. The automated system operator in the battalion FDC interfaces with the meteorological computer via local area network connection.

SURVEY CONSIDERATIONS

5-86. The primary mission of the designated survey team in a FA battalion is to provide timely survey control and common grid for firing units and target-locating systems within prescribed accuracies. Survey control consists mainly of establishing a line of known direction and determining the locations, both horizontally and vertically, of the weapons and the target-locating systems.

5-87. The reasons for common grid are listed below:

- Mass Fires. Accurate survey permits rapid and economical massing of fires. For artillery to mass fires accurately without survey requires an observed adjustment of all units on the target or prior registration of all units on a common registration point.
- Deliver Surprise Observed Fires. If survey is not available and all batteries are required to adjust on a target, the element of surprise is lost. Complete surprise is impossible without survey.
- Deliver Effective Unobserved Fires. Without survey, unobserved fires are possible only if the target has been fired on previously and re-plot data have been computed.
- Transfer Target Data Between Units. Transfer of target data between units is possible only when units are located relative to each other and to the target (on a common grid).

5-88. The FA battalion may receive survey instructions and guidance directly from the higher HQ. The FA battalion commander and S-3 are the key individuals involved in reviewing the instructions and guidance, identifying the battalion's total survey requirements, and developing battalion survey plans.

5-89. The FA battalion commander's guidance includes:

- Priorities for survey to include survey methods.
- Accuracies required if other than tactical SOP. Modified survey techniques may be needed as the result of mission variables of METT-TC (I).
- Times that critical tasks in the survey plan must be completed.
- Location accuracy and number of SCPs.
- Position requirements (for example, primary, alternate, and supplementary).
- Digitized platform (for example, automated fire control system or Paladin digital fire control system, digital fire control system, mobile counterfire system) initialization information and confidence checks.

5-90. The FA battalion S-3 must coordinate continuously with higher-echelon staff and commanders and advise the FA battalion commander on any deviation from previous guidance. If the tactical situation or the absence of accessible SCPs require use of hasty survey or field-expedient methods of establishing SCPs, the higher HQ commander must be informed.

5-91. The FA battalion S-3, advised by the survey team, develops the survey plan using available assets and techniques to best meet the guidance given by the commander. The S-3s of both reinforced and R battalions must coordinate their efforts and plans. Survey assets may have to be pooled on occasion without regard to unit identity to accomplish the mission. GS and GSR units will closely coordinate their survey requirements with the FA battalion's AO, especially during offensive operations. During defensive operations involving rearward movement, R units may rely heavily on supporting FAB or DIVARTY GS and GSR unit survey information to facilitate survey operations. The FA battalion survey plan must be coordinated to ensure use of consolidated SCP data and to eliminate duplication of effort.

SURVEY PLANNING FACTORS

5-92. The FA battalion commander and S-3 must be aware of the basic capabilities and limitations of survey before they can issue effective guidance and orders to the survey section, to include as required:

- Available survey assets, equipment, and personnel.
- Total survey requirements.
- Weapon locations and types.
- Target acquisition locations (for example, radars, observers, and military intelligence equipment).
- Survey control points.
- FAB and DIVARTY requirements.
- Target area survey.
- Time and distance factors.
- Operational status of other positioning systems (for example, those in weapon or target acquisition systems and other vehicular and handheld systems).
- Weather and terrain.
- Availability and accuracy of existing SCPs.

5-93. In addition to acquisition assets designed specifically to locate enemy units, the supported maneuver element has laser rangefinders, artillery survey, and laser-equipped observers to determine accurate planned target locations in engagement areas and on obstacles. These tools and the use of satellite-oriented locating systems such as the global positioning system greatly enhance the accuracy of FS.

SURVEY PLANNING TIMES

5-94. The factors used in planning survey include:

- Improved position azimuth determining system-GPS team:
  - Cross-country - 10 kilometers per hour.
  - Unimproved road - 25 kilometers per hour.
  - Improved road - 50 kilometers per hour.
  - Maximum mission time is unlimited.
  - Maximum mission radial distance - 75 kilometers from last update point.

PLANNING GUIDE

5-95. The FA battalion commander and S-3 can use guidelines to ensure that most of the issues relating to survey planning are covered. It is not exhaustive and may have to be modified to meet a particular situation, to include:

- Select primary, alternate, and supplementary PAA for assets requiring survey.
- Set time requirements associated with providing survey (for example, planning, reconnaissance, fieldwork, and completion).

5-96. Reduce standard requirements only if time is a critical factor. An example might be providing only direction to FA units and requiring other units to establish their own locations by use of hasty techniques. Determine accuracy requirements for weapons and target acquisition systems (for example, third, fourth, or fifth order survey), to include as required:

- Set a survey priority for each asset requiring survey. This may mean that survey will be controlled at the highest feasible level and not be done independently by individual battalions and units.
- Determine the availability of starting SCPs, improved position azimuth determining system update points, closing points, and the accuracy of each point. If they are not readily available, include the requirement to emplace them in survey priorities.
- Consider performing survey updates at SCPs during rearm, refuel, and resupply operations or in conjunction with planned moves.
- Coordinate at all levels. The requirements from higher HQ must be determined so that they can be included in the planning process.

DEGRADED SURVEY OPERATIONS

5-97. Degraded conditions for survey operations may occur due to unavailability of satellite systems or inoperable automated position or direction systems. During these times, the FA battalion will rely more heavily on the use of the most current and available improved position azimuth determining system and hasty survey techniques. During offensive operations, all FA battalions may require survey assistance from supported higher HQ survey. During defensive operations, supported higher HQ survey teams can readily assist FA battalion and R units as they move rearward; however, this requires early identification and coordination of requirements. Use hasty survey techniques during degraded operations or when adequate survey control is not available. See ATP 3-09.02 for more information on degraded and hasty survey techniques.

Chapter 6
Field Artillery Battalion Operations

This chapter discusses how a FA battalion executes a variety of operations. Section I discusses key considerations for FA support. Section II and III covers FA operations in support of offensive and defensive tasks, respectively. Section IV details FA support of other unique tactical operations, such as airborne operations. Section V addresses FA support of stability operations and defense support of civil authorities' operations, and Section VI discusses operational considerations that affect FA operations.

SECTION I – KEY CONSIDERATIONS FOR FIELD ARTILLERY BATTALION SUPPORT TO OPERATIONS

6-1. This section covers the key considerations for FA battalion support to operations, close combat supporting fires, fighting in depth, and security and protection. The ability to employ fires requires the capability to detect and locate targets and to deliver fires. Information on detect and locate targets and deliver fires follows.

CLOSE COMBAT SUPPORTING FIRES

6-2. Close combat FS demands rapid response, precision, and, at times, sustained fires for suppression. Suppressive fires cause the enemy to remain sheltered until friendly forces gain their objectives. Suppression requires control at the lowest possible level to support maneuver and to respond quickly to enemy movements. Close combat engagements fought by companies and platoons rely on highly responsive fires, frequently using precision-guided munitions delivered simultaneously by any available means.

6-3. Companies and platoons will continue to need high volumes of smoke and suppressive fires in close combat engagements. As opposed to the precision fires needed to kill identified targets, suppressive fires must affect a larger area to cause the enemy to seek shelter.

6-4. Attacking forces require precise, immediately responsive fires employed close to friendly elements. Further, these fires must be able to shift rapidly to engage or suppress new targets, isolate portions of the battlefield, or degrade the enemy's ability to maneuver. Therefore, organic means provide the optimal close combat firepower requirements for attacking tactical ground forces because of the precise timing and positive control ground commanders require.

ARTILLERY FIRES IN DEPTH

6-5. The supported commander uses indirect fires to create effects contributing to accomplishing their mission. BCT shaping of the situation in depth with both lethal and nonlethal means will be important in assuring freedom of action for their battalions and for sustaining the BCT's offensive actions to greater depth.

6-6. The counterfire challenges for the attacking force have always been greater because WLRs and the units and sensors in their network must continually displace forward while maintaining counterfire coverage. The defender can put artillery units in hidden and protected positions, use them with great discretion, and refrain from using them in mass until maximum effect can be achieved.

6-7. Corps and division will remain responsible for acquiring and attacking enemy long-range artillery systems that can target and engage maneuver brigades. Maneuver forces must assume responsibility for counterfire operations against the enemy's short-range cannon and mortar systems in their proximity.

SECURITY AND PROTECTION

6-8. FA battalions need to secure and protect their CPs and sustainment units without overly degrading their ability to conduct C2 operations. Identify elements vulnerable to detection and enemy attack to include:

- HQ and its CPs and command groups.

- Artillery batteries, CPs and WLRs, and other target acquisition assets of the FS system.
- Sustainment elements supporting the FA battalion.
- Retransmission sites.

6-9. Consider the following security and protection measures:

- Utilizing survivability moves and supplementary positions for lengthy, preplanned missions, especially when counterfire threat is high.
- Coordinate support from maneuver units to assist in defending FA battalion assets from ground attack.
- Implement passive and active protective measures for counter unmanned aerial assets.
- Make maximum use of mask to shield friendly assets from enemy acquisition.

6-10. Maintaining security will be especially difficult during high-tempo offensive operations. Local security and mutual support within a formation, to include rapid-response forces, and follow-and-support forces will need to adapt to this condition wherever they fight.

SECTION II – SUPPORT OF OFFENSIVE OPERATIONS

6-11. This section describes FA battalion techniques and considerations for FA battalion support of offensive operations. It highlights those principles that are generally common to all offensive operations and discusses FA battalion considerations unique to specific types of offensive actions.

6-12. Maneuver units use five forms of maneuver in the offense these include envelopment, turning movement, frontal attack, penetration, and infiltration. There are four types of offensive operations, movement to contact, attack, exploitation, and pursuit. The FA battalion commander and staff must understand the differences in the types of offensive operations, forms of maneuver, and the implications for the FA battalions. For more information on offensive operations, see FM 3-90.

FIELD ARTILLERY BATTALION OPERATIONS IN THE OFFENSE

6-13. The FA battalion and supporting artillery prepare the way for the maneuver force by suppressing, neutralizing, or destroying the enemy. They utilize smoke to create misdirection and obscure the enemies' vision of friendly movement. Fires are planned to soften the enemy defenses before the attack. The FA battalion utilizes short, violent preparations against front-line defenses, observation posts, C2, indirect fire weapons, and reserves.

DEPLOY AND CONDUCT MOVEMENT

6-14. Offensive operations frequently involve forward, rearward, and lateral movement. During periods of rapid advance, open terrain may be available, and PAA may be relatively easier to find. When advances stall, or attacking forces are counterattacked, terrain may condense. Movement may become a series of shorter tactical maneuvers, occasionally involving increased lateral or even rearward movement. FA considerations in support of maneuver includes:

- Plan to use hasty occupations to support rapid movement.
- Plan for the use of digital terrain tools and map reconnaissance.
- Request photographic reconnaissance or copies of the products from other reconnaissance efforts.
- Consider air reconnaissance, if available.
- Consider using locations that the enemy used for FA units. It may be an indicator that the terrain is suitable. However, these positions are known to the enemy, may contain hazards from destroyed enemy equipment as well as provide a visible signature (for example, burning vehicles) and unexploded ordnance hazards.
- FA battalions may have difficulty maintaining radar coverage during a fast-moving attack. Division and corps, DIVARTY and FAB assistance may be required.
- FA battalions may rely heavily on fast movement techniques such as movement in column or move units in several smaller march elements.
- Position firing units well forward to range beyond maneuver objectives. Identify requirements for extended range munitions.

- Plan alternate routes to bypass enemy obstacles, and request engineer mobility support, as required.
- Consider repositioning light units by air.
- Coordinate early and frequently for external WLR support.
- Position pre-designated combat configured loads at transition points.

DEVELOP INTELLIGENCE

6-15. Identify and prioritize locating enemy indirect fire assets that can potentially affect friendly offensive tasks. Develop and identify counterfire targets for preparations, counter preparations, and other fires. Use canalizing terrain or road networks near enemy FA to create target areas of interest and engagement areas. Coordinate information collection and target acquisition coverage of the area. Consider attacking entrapped enemy FA by air or ground forces as an alternative to attack by the FA battalion and supporting artillery.

Detect and Locate Targets

6-16. Plan for frequent repositioning of target acquisition assets based on FLOT movement. Use call for fire zones to provide target acquisition coverage on suspected enemy firing positions. Ensure radars are in position in time to support the assault on the objective and consolidation. Consider the use of critical friendly zones (CFZ) at congested areas such as breaching sites and gap crossings.

Deliver Fires

6-17. Provide fires at the time and place required by the supported commander, to include suppressive fires on the objective. Isolate the objective with fires beyond and to the flanks. Provide fires to support breaching tasks. Use improved conventional munitions, high explosive, and smoke to suppress enemy forces over watching obstacles. Use smoke to screen the breaching operation, and establish CFZs to facilitate aggressive counterfire, to reduce the enemy indirect fire threat against the breaching force.

6-18. Plan for increased use of hasty survey. Survey availability decreases in relation to the speed of the advance. Prepare to receive and execute hasty fire plans to support changes in objectives, repelling enemy counterattacks, or developing penetrations and exploitations. Put survey capabilities with lead FA units. Forward updated survey data to supported higher HQ to facilitate emplacement of following FA assets.

6-19. When the FA battalion supports lead elements, especially during penetrations and exploitations, it must increase coordination with its higher FA HQ. Consider using Excalibur and PGK against forces in strong points. Anticipate hasty planning. Coordinate with higher HQ to identify targets at depth. Offensive tasks may require increased use of high explosive munitions, less improved conventional munitions, and scatterable mines. Anticipate changing ammunition requirements as the offensive operation progresses and to facilitate future tasks.

EXERCISE CONTROL

6-20. To exercise control the FA battalion must be able to communicate and coordinate FS. Information on how to communicate and coordinate FS follows.

Communicate

6-21. Closely monitor distances during planning and execution to determine when digital and voice range limitations may become excessive. Employ alternate digital routing and voice capability to back up critical digital communications. Position and move retransmission teams to maintain extended lines of communications. Consider utilizing quickfire channels to provide immediate responsive sensor-to-shooter linkages for critical fires.

Coordinate Fire Support

6-22. Plan fires to prevent enemy reinforcement, disengagement, and resupply of the objective. Plan fires to protect friendly units as they reorganize on the objective.

PERFORM SUSTAINMENT

6-23. Coordinate stockpiling of ammunition for preparations. Plan for increasingly extended lines of resupply. Plan for frequent moves of the combat trains. Synchronize resupply of ammunition, petroleum, oil, and lubricants (POL). Quickly link and push well-designed expeditionary support packages far enough forward to firing units. Consider air resupply using Army air, container delivery system, or mass supply (light forces).

PROTECT THE FORCE

6-24. Plan for unit defense in a 6,400-mil environment, since encountering bypassed enemy elements becomes more probable. Implement passive and active counter UAS techniques. Based off enemy threats consider distributed C2 and sustainment. Ensure ammunition plans address security, movement, and recovery of any unused ammunition. Within the framework of the maneuver deception plan, consider deception techniques to confuse the enemy's intelligence assets. Utilize radar zones to enable effective counterfire. Prepare to provide continuous FS in a CBRN environment. The threat of an enemy CBRN attack may increase as the enemies' defeat becomes imminent.

SECTION III – SUPPORT OF DEFENSIVE OPERATIONS

6-25. This section describes FA battalion techniques and considerations for FA battalion support of defensive operations. It highlights those principles that are generally common to all defensive operations and discusses FA battalion considerations unique to specific types of defensive actions.

The types of defensive operations are area defense, mobile defense, and retrograde. The FA battalion commander and staff must understand the differences in these and the implications for the FA battalions. For more information on defensive tasks, see FM 3-90.

FIELD ARTILLERY BATTALION OPERATIONS IN THE DEFENSE

6-26. Several tactical techniques are common to the FA battalion in support of the defense. Planning considerations for the basic FA tasks in support of defensive operations follow.

DEPLOY AND CONDUCT MOVEMENT

6-27. Movement during early stages of the defense may often be reactive. The FA battalion may experience increased lateral and rearward movement until the friendly maneuver force can regain the initiative, slow the advance, or better anticipate enemy actions. All personnel involved in movement planning must understand the impacts of battle tempo on movement, which may include:

- Integrate FA battalion, DIVARTY, and FAB movement so that the FA units are in their firing positions in time to support the attack.
- Identify and avoid potential rearward and lateral chokepoints, if possible, by sequencing movement.
- Consider the civilian exodus and evacuations during the defense may interfere with movement, and request support as required.
- Coordinate movement plans with the maneuver HQ. Consider the obstacle plan in planning movements.
- If the defense is forced into unexpected lateral or rearward moves, conduct aggressive ground reconnaissance, selection, and occupation of position. Other units may be slow to react, which can cause congested terrain. The FA battalion may use alternate locations more frequently in the defense.

6-28. Use lateral maneuver to move the FA battalion and supporting FA units away from enemy penetrations. Lateral movement facilitates dispersal of FA battalion and supporting FA units while allowing both continued support to forward defenses and massing of fires onto penetrating forces. However, logistic support may be complicated if the penetration becomes large enough that batteries are widely separated, especially if FA battalion trains are forced to move rearward. Controlled sequencing of FA battalion and supporting FA movement can facilitate positioning of FA battalion and supporting FA for follow-on missions (for example, support of counterattack). FA units should request advance engineer preparation of PAA.

DEVELOP INTELLIGENCE

6-29. Monitor threats posed by enemy reconnaissance and special purpose troops infiltrating friendly territory in advance of the main force. Plan for potential enemy offensive use of CBRN capabilities and identify indicators of the enemy massing their FA assets.

Detect and Locate Targets

6-30. Reliance on external target acquisition assets to identify targets in depth may increase. Anticipate movement of radar zones based on intelligence assessments and expected rate of enemy advance. Higher FA HQ and target acquisition units can assist front line target acquisition assets in identifying and reconnoitering target acquisition positions toward the rear.

Deliver Fires

6-31. The FA battalion may participate in targeting and scheduling for counter preparation fires. The S-3 must anticipate how these fires could affect other battalion missions. Provide target area survey to ensure accurate placement of final protective fires, smoke screens, scatterable mines, and fires supporting obstacles. Identify survey requirements early and request supported higher HQ assistance with survey points to the rear. Make maximum use of digital equipment to obtain and disseminate known survey points. Deliver massed fires to support planned engagement areas, to suppress or prevent enemy penetrations, and conduct counterfire or counter preparation programs. Ensure sustainment areas have indirect FS. Consider propellant types and positioning to avoid high-angle fires to limit enemy counterfire acquisition. Plan alternate firing positions to enhance survivability in support of operations.

PERFORM SUSTAINMENT

6-32. In the defense, supply lines are frequently shorter during rearward movement. The battalion has the advantage of falling back into friendly territory. This allows for advance preparation of PAA and the battalion can fall back onto personnel, supplies, and equipment. However, civilian evacuations and enemy fires can interfere with lines of communication. In this case, determine sustainment actions to include:

- Preposition ammunition for immediate consumption.
- Plan for surge use of sustainment to maximize benefits of shortened supply lines.
- If the firing platoons of the FA battalion become widely dispersed around the flanks of a penetration, the FA battalion may need to run a modified echeloned trains operation or coordinate support through other FA and maneuver units until normal resupply lines are restored.
- Coordinate for forward triage of wounded personnel and forward repair of damaged equipment to return to combat effectiveness rapidly.
- Consider means for controlling movement of detainees and dislocated civilians to the brigade support area.

EXERCISE CONTROL

6-33. To exercise control the FA battalion must be able to communicate and coordinate FS. Information on how to communicate and coordinate FS follows.

Communicate

6-34. Use digital communications whenever possible. Plan redundant communications means. Use the acronym PACE to assist in communications.

- Primary.
- Alternate.
- Contingency.
- Emergency.

Coordinate Fire Support

6-35. Coordinate additional FA fires when survival or unplanned tactical moves temporarily hinder battalion or battery mission support. Identify FS requirements for stay-behind forces. Ensure commander's guidance addresses control of scatterable mines and dud and crater producing munitions, especially when friendly counterattacks are expected.

PROTECT THE FORCE

6-36. Coordinate for engineer support and Class IV materials to harden positions and reduce the effectiveness of enemy weapons systems. Implement passive and active counter UAS techniques. Based off enemy threats consider distributed C2 and sustainment. Plan for use of direct fire in support of battery and platoon defenses. Use CFZs to prioritize counterfire defending key friendly units. Review emergency destruction procedures and pay increased attention to operations security considerations concerning trash and abandoned equipment. Anticipate the need for survivability moves after the battalion has provided extended or intense massed fires. In a CBRN environment, identify and plan for movement avoiding contaminated areas and routes.

SECTION IV – SUPPORT OF OTHER TACTICAL OPERATIONS

6-37. This section describes techniques and considerations for FA battalion support of other tactical operations. These techniques are common to both the offense and the defense.

AIR ASSAULT OPERATIONS

6-38. Tailor the air assault task force for a specific mission. As an example, the task force may consist of an infantry battalion, an aviation company, and a FA battery. Overall command goes to the air assault task force commander. Air assaults seize objectives in depth and conduct penetration, covering force, or surveillance tasks. Air assaults may occur in urban areas, jungles, and mountainous terrain to reinforce threatened sectors.

6-39. FA battalion participation in an air assault is characterized by maximum decentralization of C2. Firing units move to quickly provide FA fires to engage targets in depth, to bypass enemy concentrations or untrafficable terrain, and to facilitate future operations.

6-40. The FA battalion and supporting FA units can expect to conduct SEAD, landing zone preparations, and artillery raids. Artillery raids involve the rapid movement of artillery assets by air into position to attack HPTs. FA raids normally require operations across the FLOT, are short in duration, and do not involve sustained operations. Detailed planning, surprise, and speed of execution are key factors for success. For more information on air assault operations, see FM 3-99.

6-41. Planning considerations for the basic FA tasks in support of air assault are discussed in the following paragraphs.

DEPLOY AND CONDUCT MOVEMENT

6-42. Coordinate load plans to ensure critical elements are cross loaded to prevent catastrophic loss in the event of downed aircraft. Conduct initial reconnaissance by map and air, and plan for air or ground displacement.

DEVELOP INTELLIGENCE

6-43. Imagery can aid in identifying potential firing points, the general topography of the land, and major routes in the area. The supported maneuver unit S-2 and supported higher HQ S-2 can assist in templating enemy forces in the air assault area and in identifying primary threats.

Detect and Locate Targets

6-44. Request forward observers to accompany leading elements of the assault force to observe and adjust SEAD fires and execute the FA tasks in support of the air assault. Coordinate with reconnaissance assets for target identification and attack.

Deliver Fires

6-45. Execute fires to support the air movement plan. Fires are initiated and terminated according to a strict time schedule. Other fires rely on phase lines, air control points and other control measures to initiate, shift, and terminate fires. Coordinate for meteorological data in the new PAA. Give priority to information collection to ensure accurate location of enemy air defenses. Ensure CPs and platoon FDCs understand priorities for SEAD. Plan fires for false insertions in support of the deception plan.

EXERCISE CONTROL

6-46. To exercise control the FA battalion must be able to communicate and coordinate FS. Information on how to communicate and coordinate FS follows.

Communicate

6-47. Utilize aircraft and coordinate retransmission during the movement to ensure continuous communication between the FSE controlling fires and the assets providing those fires. Plan and coordinate visual signals (for example, flares and colored smoke). Coordinate signal between air assault forces and supporting forces.

Coordinate Fire Support

6-48. Coordinate short and intense SEAD fires along the flight route(s) to aid aircraft flying past areas of known or suspected enemy antiaircraft positions. Consider the use of all SEAD assets that span all domains and dimensions. Plan to lift and shift fires, airspace coordination areas (formal and informal), and other FSCMs as needed to coincide with arrival times of aircraft formations. Ensure obscuration fires on or near landing zones meets commander's guidance and does not interfere with air or ground operations.

PERFORM SUSTAINMENT

6-49. Ensure adequate ammunition is available for the artillery supporting the assault force. Plan, prioritize, and synchronize resupply of sustainment materiel, primarily Class V.

PROTECT THE FORCE

6-50. Consider enemy air, ground, and artillery threats when planning moves because units are most vulnerable in pickup and landing zones. Consider the effects of munitions in the landing zone or pickup zone (for example, improved conventional munitions duds and high explosive and point detonating cratering) that may make the area unusable. Be prepared to provide 6,400-mil observation and firing capability, as required. Consider positioning units for mutual defense by taking maximum advantage of available intelligence and air imagery.

AIRBORNE OPERATIONS

6-51. An *airborne operation* involves the air movement into an objective area of combat forces and their logistic support for execution of a tactical, operational, or strategic mission (JP 3-18). The means employed may be any combination of airborne units, air transportable units, and types of transport aircraft, depending on the mission and the overall situation.

6-52. FA battalion and supporting FA units are normally attached to maneuver units for airborne operations (for example, FA battery or platoon attached to a maneuver battalion). The higher HQ of the FA units assume control of subordinate units upon arrival in the airhead. During BCT airborne operations, the FA battalion provides an assault CP to control FA assets. For more information on airborne operations, see FM 3-99. FA planning considerations for airborne operations are discussed in the following paragraphs.

DEPLOY AND CONDUCT MOVEMENT

6-53. Conduct initial reconnaissance by map or air. Plan displacement using air assets. Consider decentralized control for unit movement.

DEVELOP INTELLIGENCE

6-54. Air photography can be extremely helpful in identifying potential firing points, better understanding the general topography of the land, and major routes in the area from friendly and enemy perspectives. The supported maneuver unit S-2 and supported higher HQ S-2 may be able to assist in templating any enemy forces that can affect or are located in the drop zone.

Detect and Locate Targets

6-55. Use air observers to include UAS, and national level assets. Deploy WLRs as soon as practical after the initial assault.

Deliver Fires

6-56. Execute fires to support the air movement plan. Plan non-cratering munitions on airfields. Mass available indirect fire systems, to include mortars. Ensure units have a 6,400-mil capability. Prepare to use hasty survey techniques in the drop zone. Establish a common grid for FA and mortars as soon as possible. Coordinate meteorological data for the AO.

EXERCISE CONTROL

6-57. To exercise control the FA battalion must be able to communicate and coordinate FS. Information on how to communicate and coordinate FS follows.

Communicate

6-58. Initially use primarily frequency modulation communications. Communicate by tactical satellite means when available. Establish amplitude modulation radio communications for use over long distances. Use visual signals and messengers for short-distance communications.

Coordinate Fire Support

6-59. Rely on digital imagery and air photography when maps are not available. Ensure positive clearance of fires, which is essential during initial stages of the operation. Because drop zones are frequently out of range of supporting cannon FA, there will be more reliance on FA rockets or joint FS assets (for example, Air Force manned or unmanned observation and attack aircraft and naval FS) may be necessary.

Perform Sustainment

6-60. Resupply requires careful planning and coordination, especially Class V, as airborne units have limited sustainment capability. Supplies are usually airdropped or air-landed (for example, containerized delivery or mass supply). Inspect weapons and equipment for damage after an airdrop. Conduct MEDEVAC by air.

PROTECT THE FORCE

6-61. Position units based on enemy ground, air, and artillery threats, as well as the amount of space provided by the expanding airhead. Be prepared to provide 6,400-mil observation and firing capability, as required. Position units for mutual defense. Prepare unit defense taking maximum advantage of available intelligence and air photographs.

URBAN OPERATIONS

6-62. Urban operations are characterized by extreme limitations on freedom to maneuver. Both attacking and defending forces must use available cover and concealment offered by urban areas, but both are equally hampered by reduced visibility. While the defender normally has the advantage, operations are slow and deliberate and small-unit operations predominate. The defender enjoys superior protection as well as concealment and covered routes of movement. The attacker can isolate and bypass certain areas; but is forced to fight into other, well-defended areas.

6-63. FA battalion units can use positions in villages and small towns to great advantage. Barns and other large buildings offer complete concealment of weapons, HQ elements, supplies, and equipment. Normally, decentralization is required. Detailed orders and tactical SOPs are necessary due to decreased communication ranges and extended frontages for firing units. FA techniques of assault fire and direct fire may be required more often in urban terrain than elsewhere.

6-64. For more information on urban operations, see FM 3-09 and ATP 3-06. Planning considerations for the basic FA tasks in support of urban operations are discussed in the following paragraphs.

DEPLOY AND CONDUCT MOVEMENT

6-65. Ensure PAA will support emplacement since there is a predominance of concrete surfaces in urban areas. Anticipate the possibility that street rubble may hamper movement. Anticipate increased movements to overcome obstruction and dead space. Ensure howitzer positions allow for high-angle firing. Position FA on the edge of the urban area, if possible. Provide multiple routes of escape from the position. Select howitzer positions that allow direct fire capability. Consider the need for multiple SCPs. Anticipate difficulties due to obstructions and electromagnetic interference (for example, structural metal, power lines, and transformers).

DEVELOP INTELLIGENCE

6-66. Closely coordinate targeting efforts to ensure protected areas and FSCMs are identified and posted to automated and manual systems. Determine the status and disposition (for example, friendly, enemy, and neutral) of the civilian population. Is the enemy using the civilian population for cover?

Detect and Locate Targets

6-67. Identify size and location of dead space where indirect area fires cannot reach. Dead space is generally five times the height of buildings for low-angle fire and one-half the height of buildings for high-angle fire for area munitions. Plan precision munitions to cover dead space. Plan WLR coverage to take advantage of the increase in enemy high-angle fires. WLRs lose effectiveness if positioned too close behind buildings.

Deliver Fires

6-68. The FA battalion may support numerous small-scale close engagements. This involves frequent shifting of fires from one mission to the next. The FA battalion may need to shift ongoing missions between firing units if battle movements or adjustments move the fires into the dead space of the initial firing unit. Commanders must carefully consider the use of variable time fuzes to avoid premature detonation. Observers may lose sight of rounds detonating behind building or other structures and use caution in the adjustment of fires. More frequently, FDCs must account for bursting radius, delivery errors, and standard deviations. Reference cards, tactical SOPs, and rehearsals are critical in ensuring timely clearance of fires.

6-69. Commanders may require close control of white phosphorous projectiles, since they may create unwanted fires and smoke. Use a delay or concrete-piercing fuze to penetrate fortifications and buildings. Plan for increased use of high-angle fires. Use precision-guided munitions to engage targets in area munitions dead space or to minimize collateral damage. Consider an increase in ammunition expenditure, especially if other fires assets are not available. To provide maximum flexibility in urban operations, consider the use of a FA composite battalion. Consider use of infrared illumination if friendly forces are properly equipped.

6-70. Determine the limitations of laser designators in urban terrain, which include:

- The difficulty in maintaining a continuous laser track on moving targets because of structure interference.
- The presence of highly reflective surfaces, such as windows that may refract laser energy or pose a hazard to friendly troops.
- Presence of highly absorptive surfaces such as open windows or tunnels, which may degrade designator effectiveness.
- It may be hard to position designators to ensure Angle T does not exceed 800 mils.
- Determining accurate locations by map spot can be difficult.
- Smoke and dust dispersing the laser.

EXERCISE CONTROL

6-71. To exercise control the FA battalion must be able to communicate and coordinate FS. Information on how to communicate and coordinate FS follows.

Communicate

6-72. Anticipate reduction of radio ranges due to line-of-sight problems. Increase use of wire, messenger, and visual signals. Route wire through sewers and buildings for protection. Plan to remote antennas to upper floors to increase their range. Do not position antennas on rooftops since they will be vulnerable to fires and possibly give away unit locations. Locate generators near existing walls outside occupied buildings. Use existing civilian telephone systems for unsecured communications, when possible.

Coordinate Fire Support

6-73. To the maximum extent possible, avoid collateral damage to civilian populations. Well-defined priorities of fire are extremely important in urban operations. Consider using air observers and observers on overlooking terrain outside the urban areas to coordinate FS. Review the ROE carefully. Firing units and FSOs will encounter more detailed ROE and lists of protected or restricted sites and areas during urban operations. Proper use of FSCMs become more critical during urban operations.

6-74. Identify potentially hazardous industrial, cultural, and other protected sites that may require restrictive FSCMs. Consider underground danger areas, such as gas, water, and power lines. A natural gas explosion or electrical fire near a protected structure, civilians, or friendly troops can become a ROE violation. Coordinate FA fires carefully due to the proximity of friendly and enemy units (for example, use of a numbering system for each building may aid in coordinating fires within close proximity of friendly troops).

PERFORM SUSTAINMENT

6-75. Anticipate an increased use of certain munitions (for example, delay and concrete piercing fuzes, high explosive, smoke, Excalibur, or PGK). Use several smaller resupply convoys if movement is restricted. Anticipate difficulty moving large sustainment vehicles inside firing positions. Use locally available power sources and supplies, when available. Plan for increased time for resupply actions. Consider use of pre-stocked supplies.

PROTECT THE FORCE

6-76. Consider the use of existing structures as hardened positions and ensure stability of the structure prior to occupation. Shock waves may cause weak walls and ceilings to collapse. Implement passive and active counter UAS techniques. Based off enemy threats consider distributed C2 and sustainment. Plan to increase observation posts and listening posts, as urban terrain allows threat forces to infiltrate and get closer to artillery positions. Plan foot traffic routes to minimize exposure from observation and sniper fires from tall buildings. Consider using supplemental positions for battery or platoon defense. Establish guidance and drills for key situations (for example, snipers and minefields), to include consideration for unseen dangers (for example, underground gas, water, electrical lines, or explosive hazards).

ENCIRCLED FORCES

6-77. The FA battalion may support the breakout of encircled forces as part of the encircled force, or from outside the encirclement. Determine considerations as part of the encircled force, which include:

- Identify FA, FS, and target acquisition assets within the encirclement and ensure centralized control where possible and recommend the establishment of a force field artillery HQ, as required.
- Plan to mass fires to support the main breakout effort while maintaining 6,400-mil coverage.
- Retain the capability to mass fires, as required.
- Plan for air resupply of ammunition and critical items.
- Plan to reallocate ammunition to support the fire unit(s) supporting the breakout.
- Identify FA outside the encirclement that can range the FA battalion's zone of fire and coordinate support if possible.
- Reorganize FS communications to minimize overloading of these networks.

- Stress survival techniques.
- Identify appropriate FSCMs, such as a restrictive fire area or a restrictive fire line.
- Review existing or necessary ACMs.
- Consider the use of censor zones by the WLRs over friendly FA units in both the encircled force and the main force areas to prevent fratricide.
- Plan for restrictions on firing and reallocation of ammunition caused by shortages of munitions.

6-78. The FA battalion should be neither the first nor the last unit out of the perimeter during a breakout of an encirclement. If more than one firing element is within the perimeter, phase the withdrawal to maximize the time FA fires are available. Consider external FA support if available. Maintain unit integrity at platoon or battery level. The FA battalion commander must keep in contact with both the lead element commander and the forces remaining in the perimeter. Moving units must anticipate emergency occupations. During linkup, the FA battalion commander determines considerations, to include:

- Integrate fires with the breakout plan and establish FSCMs.
- Position weapons to support the relieving force.
- Plan for subsequent actions to include follow-on missions for the FA.
- Establish and exchange WLR zone information.

PASSAGE OF LINES

6-79. Coordination and synchronization during passage of lines is critical. The details on an FA battalion conducting forward and rearward passage of lines follows.

FORWARD PASSAGE

6-80. During an offensive passage of lines, responsibility for FA fires passes from the stationary force to the passing force at the same time control passes to the maneuver units. The stationary FA force may be attached to the passing FA force, or it may be ordered to reinforce the passing FA force from its present positions, until the passing force has moved out of range. Considerations, for forward passage of lines include:

- Establish liaison and communications with the stationary FA HQ.
- Obtain and review the passage plans of the supported force.
- Determine security requirements.
- Obtain available target lists and fire plans from the stationary force.
- Plan and review PAA and routes.
- Review possible enemy observation capabilities in the area.
- Review existing, in effect, and needed FSCMs, ACMs, and airspace plans.
- Consider future resupply operations.
- Exchange survey data with the stationary FA HQ.
- Exchange radar zone data.
- Plan for follow-on mission(s).

REARWARD PASSAGE

6-81. Withdrawal actions in the defense often involve a rearward passage of lines. This often occurs when a covering force withdraws behind the forward edge of the battle area. FA units with each force exchange liaison and critical information as early as possible. They coordinate fire plans to synchronize and maximize their combined firepower. This includes the transfer of FA support responsibilities within the maneuver unit's sector. This transfer usually coincides with the passing of maneuver control. Considerations for rearward passage of lines include:

- Exchange FA fire plans.
- Establish communications requirements.
- Coordinate clearance of PAA and routes, as required.
- Coordinate resupply, if appropriate.
- Exchange survey data in the area with the passing brigade FSO and survey planning and coordination officer (additional duty).
- Establish and exchange recognition signals with the stationary force.

RELIEF IN PLACE

6-82. Normally, the FA units will not be relieved at the same time as the maneuver forces. The change of FA responsibilities is as agreed upon by the two FA commanders unless otherwise directed.

6-83. During a relief in place, the outgoing force passes fire plans to the incoming force so those plans can be continued. Both FA commanders determine considerations, to include:

- Establish liaison and communications between FA units.
- Exchange signal information.
- The incoming FA unit reviews and, if necessary, adjusts fire plans to support the incoming force.
- Establish procedures for the relief.
- Establish the tasks of the outgoing FA.
- Disseminate specific tactical SOP items of the incoming force.
- Disseminate the current target list to the incoming force.
- Plan fires to support or emplace a barrier or obstacle, as required.
- Plan smoke to screen friendly movements.
- Support the deception plan.
- Displacement of relieved artillery units, movement, and emplacement of relieving artillery units to avoid reduction of support or alerting the enemy.

GAP CROSSING OPERATIONS

6-84. Determine considerations during an offensive gap crossing (deliberate, hasty, or covert), to include:

- Air observers, UAS, and other collection capabilities can provide surveillance beyond the gap depending on availability and visibility. Smoke may limit ground observation.
- Consider using CFZs, with defined cueing techniques, on the gap-crossing site, associated assembly areas, and air defense positions.
- Fire series and groups to neutralize the bridgehead area and then to isolate it. Use in depth fires to prevent or delay enemy reinforcements.
- Position firing units to facilitate rapid crossing of the maneuver force.
- Ammunition expenditures of smoke and, possibly, illuminating projectiles may be high during a deliberate crossing. Consider air resupply initially to the far bank to offset congested crossing sites or stockpiling it in logistics sites along firing platoons' routes of march to the crossing site.
- Maintaining communications is critical when units are split on the two banks of the gap crossing.
- FA battalion units should displace to far bank positions as soon as maneuver units seize first-phase objectives on the far bank and secure FA positions are available. FA units must cross the gap before their supported maneuver units move out of range. FA crossings require well-planned integration into the overall combined arms movement plan.
- Survey assets should cross as soon as possible. When a survey team equipped with survey crosses a wet gap by barge or boat, ensure plans allocate time for it to do a ten minute zero-velocity update just before crossing.

6-85. Considerations during a retrograde gap crossing (deliberate, hasty, or covert) include:

- Anticipate fires to the flanks on enemy crossing sites and infiltrating forces involved in enemy flanking efforts.
- Consider using CFZs, with defined cueing techniques, on the gap-crossing site, associated assembly areas, and air defense positions.
- Use call for fire zones and templating to locate enemy FA that attempts to interdict friendly routes of withdrawal, reinforcement, and resupply.
- Plan for increased close combat fires (for example, final protective fires, smoke, and scatterable mines) and massed fire missions to assist disengagement and withdrawal of the last maneuver elements across the gap.
- Move FA across the gap as soon as possible, while maintaining mission capability, to avoid entrapment or congestion.
- If the maneuver force plans to establish defensive positions across the gap, and stabilize the FLOT, consider engineer support to harden FA and forward observer and FIST positions across the gap.

- FA battalion units may be able to move into hardened positions vacated by supporting FA units. However, consider the risks that the previous firing may have compromised the positions.

BREACHING OPERATIONS

6-86. Breaching is a synchronized combined-arms operation under the control of a maneuver commander. Breaching operations begin when friendly forces detect an obstacle and begin to apply the breaching fundamentals, and they end when battle handover has occurred between follow-on forces and a unit conducting the breaching operation. Considerations for breaching operations include:

- Provide suppressive indirect fires.
- Anticipate the need for high volumes of suppressive and obscuration ammunition.
- Develop expeditionary support packages to support breaching related EFATs/EFSTs and schedule delivery to maximize ammunition resupply operations.
- Provide fires during phases of the breaching (for example, suppress, obscure, secure, reduce, and assault). For more information, see FM 3-09.
- Alternate plans are especially critical to maintaining suppressive and obscuration fires while the breaching team is exposed.
- Unplanned breaching operations may require that the FA battalion S-3 quickly review ammunition status for impact on other tasks.
- Position a forward observer or FIST member forward to coordinate fires for the breaching team. Plan for observers in depth, including air observers and UAS.
- All FA firing units must understand the primary and alternate triggering plans to shift fires to the assault force.
- Anticipate SEAD fires if air assets participate in the operation.
- Consider using scatterable mines to prevent reinforcement or counterattack. Ensure it does not interfere with the breaching or the follow-on assault.
- Coordinate WLR coverage and zones in support of the breaching operation.
- Plan for extensive use of smoke or illumination.
- Consider use of infrared illumination during night breaches.
- Avoid use of dual-purpose improved conventional munitions on or near the breaching site and avenues of advance due to the possibility of hazardous duds.
- Position artillery forward, but clear of avenues of approach.
- Be prepared to quickly move firing units through the breach.

6-87. For more information on breaching operations, see ATP 3-90.42.

SECURITY OPERATIONS

6-88. Units conduct security operations tasks to provide early warning of enemy operations, to provide the force being protected with time and space within which to react, and to develop the situation for the protected force. The five types of security operations tasks are screen, guard, cover, area, and local, which respectively contain increasing levels of combat power and security. Local security operations tasks are not discussed. The FA battalion commander and staff must understand the differences in these tasks and the implications for the FA battalions.

6-89. For more information on security operations, see FM 3-90.

COVERING FORCE OPERATIONS

6-90. The covering force is a tactically self-contained security force operating a considerable distance to the front or rear of a moving or stationary force. Offensive covering force operations emphasize reconnaissance along the main body's axis of advance and attempt to destroy the enemy's reconnaissance and security forces, determine enemy force dispositions, identify gaps or weaknesses that the main body can exploit, and to defeat and destroy forces, as directed.

6-91. Defensive covering operations focus on counter reconnaissance. They attempt to prevent the main body from being surprised, to defeat the enemy's reconnaissance and advance elements, determine the size and direction of the enemy's main attack, and delay and disorganize enemy forces to allow the main body

additional time to prepare its defense. Covering force operations are frequently fast-paced operations involving extended forces operating over long distances.

6-92. A FA battalion may be part of a larger covering force operation where a FAB or DIVARTY functions as the force field artillery HQ. The FA battalion can provide FS to a BCT, but may also have a support relationship of R, GSR or GS. If directed by the supported commander, the FA battalion may serve as the covering force FA HQ. In either case, the FA battalion may have one or more attached or R batteries. Considerations for FA battalion and supporting FA units involved in covering force operations include:

- Locate the enemy and provide responsive fires to leading elements and elements in contact.
- Use priority of fires and quickfire channels.
- Attack targets in depth with massed fires to prevent enemy reinforcements.
- Plan for hasty attack contingencies.
- Anticipate frequent moves and emergency fire missions.
- Keep ammunition uploaded.
- Plan for employment of hasty smoke, illumination, and increased suppressive fires.
- Plan to use scatterable mines to delay enemy formations and consider employment of special munitions for selected HPTs.
- Prepare for the use of permissive, on order FSCMs and rapidly moving FLOT requiring frequent position updates.
- Plan for a passage of lines, by reviewing passage of lines procedures.
- Position supporting FA forward. Consider future missions in selecting FA positions when the covering force operation nears completion.

SCREEN

6-93. Screen describes a force whose primary task is to observe, identify, and report information. A screen force fights only in self-protection. The screening force maintains surveillance, provides early warning to the main body, destroys enemy reconnaissance elements within its capability, and impedes and harasses the enemy. Indirect fires are a significant means of impeding and harassing the enemy. FA planning and execution in support of a screen mission is similar to that for a defense in sector mission.

GUARD

6-94. Guard describes a force whose primary task is to protect the main force by fighting to gain time. A guard force also observes and reports information to prevent enemy ground observation or direct fire against the main body. This is accomplished by reconnoitering, attacking, defending, and delaying. A guard force normally operates within the range of the main body's indirect fire weapons. The FA battalion supporting this operation, plans, prepares, and executes this mission as it would for any other security operations task.

AREA SECURITY

6-95. Units conduct area security operations to protect friendly forces, installations, and actions in a specific area. Area security preserves the force commander's freedom to move the reserves, position FS assets, conduct operations, and provide for sustainment operations. Area security actions, which may be offensive or defensive in nature, could include area reconnaissance; sustainment operations; and security of designated personnel, equipment, facilities, and critical points. Applications of area security missions are convoy and route security. FA battalion considerations, for area security, are similar to those identified to support the brigade support area.

BASE AND BRIGADE SUPPORT AREA SECURITY

6-96. The objective of base security is to maintain a secure position, defending in all directions. The commander can employ base security when conducting either offensive or defensive operations. The supported higher HQ establishes base security when the supported unit must hold critical terrain in areas where the defense is not tied in with adjacent units. The supported higher HQ can also form a perimeter and conduct base security when it has been bypassed and isolated by the enemy and must defend in place.

6-97. Security operations must synchronize the sustainment operations functions of terrain management, security, sustainment, and movement in consonance with the supported higher HQ commander's concept and

intent. A FA battalion must employ fires throughout the supported higher HQ AO, to include FS for base and brigade support area operations. The supported higher HQ FSE plans fires and coordinates the clearance of airspace for the base and brigade support area operations. The FA battalion S-3 should consider PAA selection, nonstandard mission assignment, on order mission of R FA when developing plans to execute FA fires in support of base and brigade support area operations.

6-98. While the division and corps FSEs are the primary planners and coordinators of division and sustainment area fires, FAB and DIVARTY battalions may participate in the R, GSR and GS fires process. They may assist in coordinating fire plans with nearby sustainment units or host nation military, paramilitary, or civil authorities. They may also provide call for fire training to key personnel, especially those responsible for base cluster defenses.

6-99. Three levels of response to threats serve as guides for planning brigade support area operations. These levels focus on the nature of the friendly actions needed to defeat the threat, which may include:

- Level I. Smaller threats that the base or base cluster self-defense measures can defeat.
- Level II. Threats beyond the capability of the base or base cluster self-defenses, but relatively small response forces (for example, military police) can defeat.
- Level III. Threats that require commitment of a combined arms tactical combat force to defeat.

6-100. These threats can result from enemy forces infiltrating the base and brigade support area. A successful defense against a Level III threat requires planning and preparation for the tactical combat force's employment. The S-3 should consider the use of fires in support of tactical combat force security operations. Commanders will generally provide FA fires for Level III threats or in support of a military police force engaging a Level II threat in an area where the possibility of collateral damage is reduced.

LINKUP OPERATIONS

6-101. Linkup operations join two friendly forces. Both forces may be moving toward one another, or one may be stationary. Often, a linkup operation requires a passage of lines. When the linkup is made, the linkup force may join the stationary force, or it may pass through or around and continue the attack. The controlling HQ of both forces establishes the command relationship between the two forces and the responsibilities for each. It also establishes the control measures. Considerations for linkup operations include:

- As the linkup nears completion, consider future operations in positioning of FA battalion elements.
- Plan for the increased use of on-order restrictive fire lines and coordinated fire lines.
- Place increased emphasis on maintaining updated position locations FSCMs and ACMs in both automated and manual systems.
- Anticipate blocking fires to prevent trapped enemy forces from escaping the linking forces.
- Ensure clearance of fires procedures are addressed between both linking forces. R, GS or GSR units may need to clear fires with both linking forces.
- Exchange targeting and communications information, triggers, quickfire channels, laser designation codes, and other essential items.
- Exchange recognition signals and disseminate to personnel.
- FA battalions supporting linking forces should consider exchanging liaison. If the linkup involves a stationary and moving force, the moving FA HQ should provide liaison to the stationary FA HQ.

ARTILLERY RAID OPERATIONS

6-102. An artillery raid is a type of spoiling attack that uses FA as its primary attack mechanism. Raid missions support the supported higher HQ objectives by sending firing elements forward to engage enemy targets that are currently beyond the maximum range of available FA weapons. Raids may occur in conjunction with a large ground attack that seizes the terrain needed for the firing unit, with a small force that creates a relatively small moving pocket, or even without a significant ground force (if the threat is low). Towed FA units may conduct airmobile FA raids. HIMARS FA units may conduct HIMARS rapid aerial insertion operations. An artillery raid is frequently a platoon or battery-sized operation but can involve an entire battalion.

ARTILLERY RAID TECHNIQUES

6-103. The artillery raid consists of the unit selection, raid briefing, execution of the raid, and checklists. Details of the artillery raid techniques follow.

Unit Selection

6-104. If supported higher HQ does not specify the firing element, the battalion S-3 determines which unit and firing element will conduct the raid based on factors, to include:

- Number and characteristics (for example range, rate of fire) of available howitzers.
- Ammunition availability (for example, number and type of rounds).
- Location of firing element (for example, proximity to firing points).
- Tactical situation.
- Personnel (for example, amount, training, and experience).

Raid Briefing

6-105. For cross FLOT operations, the battalion HQ will conduct a raid briefing with the commander of the selected battery and platoon. If available, the commander of the maneuver security force should be present during the briefing to enable coordination. Due to time constraints or travel distance involved, a face-to-face meeting with the maneuver commander may not be feasible. For raids to be conducted behind the FLOT with minimal external assistance, raid missions may be passed via radio (voice or digital). The battalion commander or S-3 conducts the raid briefing, to include:

- SITUATION. Friendly, enemy, attachments, and detachments.
- MISSION. Who, what, when, where, and why (for example, the size of the element to conduct raid, method of control, and target and firing point grids).
- EXECUTION
  - Route.
  - Start point, check point, and release point locations.
  - PAA.
  - Rally point after mission.
  - Target grids.
  - Firing window or time on target.
  - Number and type of rounds per target.
  - Number of howitzers required.
  - Call signs and frequencies.
  - FSCMs and ACMs.
  - Abort authority and abort code word.
  - Emergency destruction criteria.
  - FS assets available.
  - Link up-point with maneuver element guides.
  - Protection (for example, air defense artillery, electromagnetic warfare, FS assets, and escort).
  - Passage lane and passage point.
  - Procedures and signals for passage of lines.
  - Maneuver call signs and frequencies.
  - Maneuver commander name and rank.
  - Medical and CASEVAC.
- SUSTAINMENT
  - Maintenance support and contact team requirements.
  - Survey support available.
  - Reload requirements.
  - Amount of ammunition to be brought forward.
  - Rearming and refueling support.
- COMMAND AND SIGNAL
  - Retransmission location and frequency.
  - Command nodes (for example, FDC vehicle and antennae).

Execution of the Raid

6-106. Identify responsibilities and outline steps for the actual execution of the raid. Firing units will carry forward only the number of vehicles necessary to accomplish the mission as designated by battalion. Depending on the importance of the target, one additional howitzer will be brought forward and laid on the target in case of technical or mechanical difficulties. Weapons platforms with automated fire control systems will move forward with the mission in their system and a hardcopy of the mission in case manual fire mission processing is required.

6-107. The officer in charge or NCO in charge of the raid party will brief the supported unit commander or representative at link up point or via communications as directed. Once the brief is conducted, the leader of the raid unit or a maneuver escort will bring the firing elements to the link-up points. Security force will move forward and clear the route to the firing point. If possible, report link-up, movement and checkpoints, and in position to battery or platoon FDC.

6-108. If necessary, a vehicle will be brought forward with the raid element to act as a relay between the raid element and the controlling raid HQ if constant communications are required. If not, the communication will be maintained between the supported unit HQ, the battalion CP, and the raid officer in charge. The raid officer in charge must be prepared to accept target updates prior to the designated time.

6-109. Once the security force has cleared the route, the firing element will be called forward to the firing point. Once the mission is fired the unit will report shot on each target and rounds complete to the controlling HQ. The firing element will then withdraw to a pre-designated rally point. If the firing unit was briefed that it was to perform a follow-on mission, the unit would proceed to the next location and fire the mission. Upon rounds complete, the firing element will withdraw to the rally point. Battalion will provide abort criteria.

Checklists

6-110. The use of checklists can assist raid planners. Develop checklists as part of the unit tactical SOP or battle books. Table 6-1 provides an example of a battalion level checklist for an artillery raid operation.

Table 6-1. Artillery raid planning checklist (example)

ITEM	*ACTIVITY*
1	Verify raid order contains all pertinent data.
2	If not specified, what size field artillery unit is necessary for a successful mission?
3	Who is the raid force commander (for example, maneuver or field artillery)?
4	What protection assets will support the raid force? Maneuver Force? Fire Support Plan? Air Defense? Reconnaissance and Security? Radar? Observers?
5	What are the ABORT criteria?
6	What frequencies will be used to command the raid?
7	Any updates on enemy and friendly situation that impact on raid?
8	What is the route (does it require clearance by a maneuver commander)?

Table 6-1. Artillery raid planning checklist (example) continued

ITEM	*ACTIVITY*
9	Passage of Lines. Linkup Routes, Grid and Time? Maneuver Graphics? Engineer Plan (mobility and counter mobility)? Air Defense Plan and Coverage to include the Airspace control overlay? Fire Support and Observation Plan? Control (Raid Battle Handover Line)? Medical Evacuation Support? Maintenance Support?
10	What survey support is optimal and adequate for raid force?
11	Is meteorological data available and valid?
12	Will ammunition need to be brought forward? How much?
13	What is the reload plan (approved location for reload operations)? Need to conduct reload to complete the mission?
14	Will the firing point require clearance by a maneuver force? Will this be in addition to the security force?
15	What is the link-up grid for coordinating with the raid force commander? When will link-up take place?
16	What is the name, frequency, and call sign of the raid force commander and security force?
17	Notify the raid commander of the raid mission and time and place of briefing.
18	Plot firing positions, passage lanes, points, and routes.
19	Determine and verify firing elements, number of howitzers, and command structure.
20	Develop timetable (start point, time on target).
21	Brief the commander of the raid element battery or platoon.
22	Track planning and rehearsal schedule coordinated by battery and platoon.
23	Monitor and track progress of raid.

SECTION V – SUPPORT OF STABILITY OPERATIONS AND DEFENSE SUPPORT OF CIVIL AUTHORITIES

6-111. The FA battalion provides support for stability operations. Stability operations are joint force operations and involve significant political considerations. The FA battalion leaders should understand the nature of unified action partner relationships, and the cultures of our allies and the host nation. The FA battalion's success relies in large part on the legitimacy provided by international agreements, the battalion's ability to abide by established agreements, and the ROE while executing assigned tasks.

6-112. Defense support of civil authorities are typically conducted within the United States. The FA battalion's communications infrastructure, coordination skills, and inherent mobility can enhance and assist a command's overall coordination and liaison effort. Potential responsibilities include enhancing effective command, convoy operations, local security operations, and liaison.

STABILITY OPERATIONS

6-113. Stability operations encompass activities where the FA battalion is employed in areas outside the United States. The battalion may conduct offensive and defensive tasks but may also support operations in nontraditional, noncombat roles. Disaster relief and humanitarian assistance and security are examples.

6-114. Stability operations encompass various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and

humanitarian relief. Stability tasks emphasize constructive effects and focus toward achieving the desired end state. Stability tasks a FA battalion perform include:

- Establish civil security.
- Establish civil control.
- Restore essential services.
- Support to governance.
- Support to economic and infrastructure development.

6-115. For more information on stability operations, see ADP 3-07.

DEFENSE SUPPORT OF CIVIL AUTHORITIES

6-116. The Defense support of civil authorities is conducted in the United States. FA units contribute in nontraditional ways during defense support of civil authorities. See ADP 3-28 for additional information on defense support of civil authorities.

SECTION VI – OPERATIONAL CONSIDERATIONS

6-117. Both climate and terrain can vary widely between different operational areas. FA battalions frequently adjust their tactics, techniques, and procedures to account for these differences. Operational considerations include:

- Night operations.
- Cold weather operations.
- Desert operations.
- Jungle operations.
- Mountain operations.
- Maritime operations.

6-118. For more information on operational consideration that effect FA, see FM 3-09.

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Chapter 7
Field Artillery Battalion Sustainment

The FA battalion must provide responsive, effective, and sustainable fires in a variety of environments across the range of military operations. The sustainment warfighting function is the related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance (ADP 3-0). Sustainment is the warfighting function that deals with arming, fueling, supplying, providing medical care and maintenance for the FA battalion. For more information on sustainment, see ADP 4-0 and FM 4-0.

SECTION I – FIELD ARTILLERY BATTALION SUSTAINMENT OVERVIEW

7-1. Sustainment operations are simultaneously distributed across the AO in accordance with the supported commander's intent and OPLAN. Sustainment of the FA battalion is normally conducted in conjunction with sustainment of the supported higher HQ. Ammunition expenditure rates of the FA battalion will drive additional resupply operations.

7-2. Sustainment at this echelon is centered on the BSB. The BSB is an organic component of a BCT, and the corps FAB. It provides supply, maintenance, motor transport, and Role 2 medical support to the supported BCT or brigade. It is tailored to support the brigade to which it is assigned. For example, the BSB of an armored BCT has more fuel distribution and maintenance capabilities than an infantry BCT BSB. See ATP 4-90 for additional information.

FIELD ARTILLERY BATTALION SUSTAINMENT

7-3. The FSC is the cornerstone of the distribution system at the FA battalion level. The FSC contains logistic elements plus DS maintenance. The FA battalion staff provides human resources, financial management, religious, legal, and command information support.

NOTE. Although this chapter's discussion addresses sustainment within the DIVARTY FA battalion, those FA battalions task organized to a FAB are supported in a similar manner. For more information on sustainment in the DIVARTY or FAB, see FM 4-0.

7-4. The FA battalions are sustained from their augmenting FSC, the BSB, and at times directly from the division, corps, and theater sustainment base. Under the supervision of the battalion XO, the battalion staff identifies sustainment requirements. The FSC commander positions sustainment assets with input from the battalion S-4. The FSC provides supply, maintenance, and transportation to the FA battalion and is the key sustainment operator at the FA battalion level. The S-4 will request any additional logistics support.

SECTION II – ORGANIZATION AND FUNCTIONS

FORWARD SUPPORT COMPANY

7-5. There is one FSC for each FA battalion in the DIVARTY, FAB, and assigned or organic to a BCT. The brigade commander, with advice from the BSB and FA battalion commanders, will determine the appropriate command relationship for the FSCs. Mission and operational variables are considered when determining the command relationship. Normally, the FSCs are attached to the FA battalions because they operate in dispersed fashion and regularly displace their firing batteries during combat. The FSCs may be attached to the BSB if the situation dictates. The FSC commander is responsible for executing the sustainment plan for the FA battalion in accordance with the supported FA battalion commander's guidance.

7-6. The FSCs have a HQ section, distribution platoon, and a maintenance platoon. The distribution platoon consists of battalion and battery support squads. The maintenance platoon consists of a platoon HQ, maintenance control section, maintenance section, service and recovery section, and the field maintenance teams.

7-7. The FSC provides field maintenance and supply distribution for the FA battalion. The company commander is responsible for executing the sustainment plan in accordance with the FA battalion commander's guidance. The company has a distribution platoon and a maintenance platoon that support Class I, Class III, Class V, Class IX, maintenance, and recovery. The FSC can operate from either unit trains in one location or echeloned trains organized into battery trains, combat trains, or field trains.

7-8. The maintenance platoon can function consolidated or echeloned, depending on METT-TC (I). It consists of a platoon HQ, maintenance control section, service and recovery section, maintenance section, and two to three field maintenance teams designed to provide support to the FA batteries.

7-9. The distribution platoon has a Class III, V, and a general supply section. The distribution platoon provides distribution of all classes of supply (minus Class VIII). The FSC has no authorized stockage list, except as necessary to support issue and turn-in operations. It may carry critical line replaceable units and combat spares as authorized or directed. Combat spares are a combination of shop stock, bench stock, and prescribed load list.

7-10. The company is organized with a food service section that is designed to provide the FA battalion with Class I and field feeding. It can operate one main kitchen serving Unitized Group Rations - A options, up to three mobile kitchens serving unitized group rations heat and serve or distribute meals ready to eat or unitized group rations - E option in accordance with the brigade field feeding plan.

7-11. The platoon HQ section manages the distribution of supplies in support of the FA battalion, which may include:

- Maintain a current listing for on-hand commodities.
- Establish facilities for limited storage, receipt, and issue of supported commodities.
- Perform limited storage, receipt, and issue of supported commodities.
- Deliver issued assets (for example, logistics packages) and picks up retrogrades (for example, turn-ins to maintenance or for disposal).

7-12. The distribution section is responsible for supporting retail fuel operations in the FA battalion. The distribution section is responsible for supporting Class V operations in the FA battalion. Small-arms ammunition constitutes an insignificant portion of the FA battalion daily tonnage requirements and is handled routinely with normal ammunition resupply.

7-13. The FA battalion S-4 plans for and supervises Class V operations, and the distribution platoon leader supervises resupply operations. The S-3, S-4, coordinates with the FSC commander and the distribution platoon leader exchanging information concerning ammunition. Each must know the RSR submitted to the supported higher HQ, the CSR established by the supported higher HQ, and the authorized basic load. Provide this information to the battalion and battery commanders so they can plan resupply operations and set priorities.

SECTION III – SUSTAINMENT PLANNING

7-14. The lead sustainment planner in the FA battalion is usually the S-4, assisted by the S-1, the battalion surgeon, and FSC commander. Representatives from these and other sections form a sustainment planning cell to ensure sustainment plans are fully integrated into operations planning.

7-15. Although the sustainment planners control and coordinate sustainment and other support for specific FA battalion operations, routine operations are usually planned in the field trains. The battalion S-1 may have representatives at or near the brigade S-1 to handle various human resource functions (for example, replacement or monitor casualty operations). The battalion S-4 may choose to locate with the BSB sustainment officer.

7-16. To provide effective support, sustainment planners and operators must understand the mission statement, intent, and concept of the operation. The S-4 is responsible for producing the sustainment paragraph and annexes of the FA OPLAN, OPORD/FASP, which include:

- Commander's priorities.
- Class III and Class V resupply during the mission, as required.
- Movement criteria.
- Type and quantities of support required.
- Priority of support, by type and unit.
- Sustainment overlay.
- Supply routes.
- Logistic release points.
- Casualty collection points.
- Ambulance exchange points (in conjunction with the brigade medical planner).
- Maintenance collection points.

REPORTS

7-17. The accurate reporting of sustainment status is essential to keeping units combat ready. SOPs should establish report formats, reporting times, and voice brevity codes to keep sustainment networks manageable. Automated systems help commanders automate the sustainment data-gathering process through sustainment situation reports, personnel situation reports, logistical calls for support, sustainment task order messaging, situational awareness, and task management capabilities.

7-18. Automated systems collect sustainment data from various sustainment-related information systems to support sustainment-related decisions. To assist planners, automated systems have a simulation tool that enables the user to project supply consumption for a given COA by event or across time. To assist in execution, automated systems give the commander the latest available status of critical weapons systems, fuel, ammunition, and personnel. Automated systems also provide a map-centric view of inbound vehicles and cargo that are equipped with movement tracking devices. The battalion staff must be proactive in identifying and solving sustainment issues, to include:

- Use automated systems to maintain sustainment situational awareness.
- Work closely with higher HQ' staff to resolve sustainment problems.
- Establish sustainment priorities that conform to mission requirements.
- Recommend sustainment related CCIRs.
- Inform the commander of critical sustainment issues.

7-19. The S-6 and FSC commander must work together to ensure that automated systems, and sustainment information systems have interconnectivity. The S-4, S-1, and FSC commander must monitor the status of this system and implement alternate means of reporting, as required.

MEDICAL REPORTING

7-20. The medical communications for combat casualty care and Defense Health Information Management System are an automated system, which links commanders, health care providers and medical support elements, at all echelons, with integrated medical information. The medical communications for combat casualty care and Defense Health Information Management System receives, stores, processes, transmits, and reports, medical surveillance, casualty movement and tracking, medical treatment, medical situational awareness, and medical data across all roles of care.

7-21. The brigade surgeon's section uses automated systems, and medical communications for combat casualty care and Defense Health Information Management System to support mission planning, coordination of orders and subordinate tasks, and to monitor and ensure execution throughout the mission. Combat commanders use the medical communication for combat casualty care system to access medical surveillance information, resulting in enhanced medical situation awareness.

SUSTAINMENT SUPPORT FOR ATTACHMENTS

7-22. Generally, attachments to the FA battalion should arrive with their appropriate sustainment augmentation. When a platoon, section, or detachment is attached to the FA battalion, the battalion S-4

integrates their sustainment augmentation pieces into the battalion support system. The battalion S-4 must clearly state who will provide health service support, maintenance and recovery, and supply support for Class III, V, and IX. When receiving attachments, sustainment planners require some basic information from the attached unit's S-4 to anticipate how to develop a synchronized concept of support, to include:

- Number and type of vehicles, personnel by specialty, and weapons systems.
- Current status and strength.
- When attachment is effective and for how long.
- What support assets are coming with the attached unit.
- When and where linkup will occur, and who is responsible for linkup.

SECTION IV – SUPPLY AND TRANSPORTATION

7-23. Supply and transportation are elements of sustainment. The classes of supply and a reference to transportation related to supply make up this section.

SUPPLY

7-24. Supplies are grouped into ten classes for supply management and planning see Table 7-1. Resupply operations are based on these classes.

Table 7-1. Classes of supply

SUPPLY CLASS	*DEFINITION*
I	Subsistence, water, and gratuitous health and comfort items.
II	Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, unclassified maps, administrative and housekeeping supplies and equipment.
III	Petroleum, oil, and lubricants.
IV	Construction and barrier materiel.
V	Ammunition.
VI	Personal demand items normally sold through exchanges.
VII	Major end items.
VIII	Medical materiel to include repair parts peculiar to medical equipment.
IX	Repair parts and components.
X	Materiel to support nonmilitary programs.

EXPEDITIONARY SUPPORT PACKAGING

7-25. To facilitate the ordering and distribution of supplies, the Army uses expeditionary support packages to package commonly requested supplies. The Army uses expeditionary support packages for training exercises, deployments, war reserves, pre-positioned stocks, and predictable demands to meet the unit commanders' requirements.

7-26. Expeditionary support packages allow for a minimum of handling from the storage point through the transportation system and to the supported units. These loads are equipped with radio frequency tags or other automated methods. The radio frequency tags, and automation enable logisticians to track supplies and redirect the expeditionary support packages to accommodate changes in missions and priorities.

7-27. Expeditionary support packages are appropriate for all classes of supply except some Class VII major end items. Standard expeditionary support packages in conjunction with a "pure palleting" methodology provide responsive support for meeting actual requirements during sustainment phase of operations. This allows commanders the ability to order only what is necessary and minimize retrograde of unnecessary material.

PURE PALLETING

7-28. Pure palleting collects supply requisitions for a given unit using their Department of Defense activity address code. It configures standard expeditionary support packages and other supply items into loads, then throughputs them to their destination. Time limit for the collection process is usually three days. Packages not filling a whole pallet are then combined with other packages to produce consolidated loads that are

destined for multiple Department of Defense activity address codes in a BCT will be shipped to the BCT's supply and distribution company.

7-29. Develop pure pallets for supplies, which include:

- Class II (for example, CBRN clothing, detection equipment and decontaminants, and religious supplies).
- Class III (for example, packaged POL).
- Class IV (for example, construction and barrier materials).
- Class VIII (for example, medical).
- Class IX (for example, batteries and repair parts).

RATIONS

7-30. The FA battalion deploys with three days of operational rations as its unit basic load. The BSB draws its operational supplies once it is in the joint operations area, based upon unit strength reports. Currently, the office of the surgeon general limits the continuous use of meals ready to eat to 21 days. Theater food service officers provide guidance on when to introduce unitized group rations and other ration supplements. Fresh food (A-rations) after deployment may be available through regional commercial contractors. This must be approved by the commander's guidance and either Army veterinary services or through the civilian augmentation program.

WATER

7-31. Water is provided to Soldiers in two forms: bulk and bottled (or packaged). Water support will be provided through an organic water purification and distribution capability when feasible. Bulk potable water is used as needed for individual Soldiers. Bottled water may be provided on a limited basis, usually during the deployment phase of operations.

7-32. Bottled water and rations are broken down into daily lots at the BSB distribution point and picked up by the FSC supply section. Each battery has water trailers and five-gallon containers for distribution of potable water. Battery supply SGTs maintain water trailers in their battery area, and refill from the brigade support area. Refilling of five-gallon containers occurs during logistics package operations. Usually, a one-for-one exchange is conducted with the containers (one empty for one full); the supply section refills the containers.

CLASS I & II (PACKAGED)

7-33. Usually, the BCTs deploy with 30 days of common consumable supplies. Battery supply SGTs maintain the appropriate level of CBRN defense equipment. These supplies are provided by the BSB and are maintained as part of the unit's authorized stockage list. Vehicles also carry a small amount of commonly used packaged petroleum products for immediate use. These loads are established in the unit SOPs.

7-34. Replenishment and other necessary supplies are ordered by company supply SGTs from the BSB. Supplies are provided at the DIVARTY distribution point, usually within the brigade support area to the FSC supply for the appropriate battery. They are carried forward with the next logistics package, or immediately, if needed.

Religious Supplies

7-35. The unit ministry team of the FA battalion orders consumable chaplain supplies through the DIVARTY unit ministry team, as required. These supplies are considered Class II.

Maps

7-36. Maps are considered a Class II supply. Paper map sheets are delivered with appropriate supplies to the requester. Unit SOP should detail the specific procedures for digital maps.

CLASS III (BULK)

7-37. The FA battalion usually deploys with half-full vehicle fuel tanks, purged fuelers, and empty fuel cans. Fuel is issued upon arrival in the operational area. Fuel for UAS will be issued by a dedicated fuel asset within the BCT.

7-38. The battalion S-4 forecasts the battalion's requirements based upon the current or upcoming mission. The forecast is SOP dependent, but usually is for the 72-hour period beyond the next day, or out to 96 hours. The FSC conducts forward distribution to the platoons, batteries, CPs, and attachments.

CLASS IV

7-39. FA battalion deploys with a limited amount of Class IV barrier materiel, primarily for protection of unit perimeters and key positions (for example, CPs). This material is part of the unit's basic load and usually is carried on tactical vehicles.

7-40. Battery supply SGTs order replenishment from the BSB. The FSC carries the supplies forward with the next logistics package, or immediately, if needed. Barrier materiel may also be requested as expeditionary support packages.

CLASS V

7-41. A combat load is the unit commander's designated quantity of munitions and items authorized to be carried by unit personnel and combat vehicles (for example, turret-load). Troop-carried munitions to accompany troops are those issued before departure from the airport of embarkation. Turret-load and combat load munitions are those authorized for transportation in thick-skinned vehicles for deployment purposes. FSCs have the capability to haul one combat load of critical munitions.

7-42. Most units do not deploy with their ammunition combat load of Class V ammunition. Instead, they are issued their combat load upon arrival in the joint operations area. When the urgency of the deployment and the likelihood of initiating combat operations immediately upon arrival in the operational area dictate, selected units deploy with a full combat load of ammunition.

7-43. The BSB does not deploy with sustainment stocks. Initially, munitions are delivered to the brigade support area as expeditionary support packages from pre-positioned stocks (in-theater or afloat) or from the continental United States.

7-44. The battalion S-4 determines the battalion's ammunition resupply requirements based on information provided in the batteries' situation reports, and guidance received from the battalion commander and S-3. When determining ammunition requirements, the battalion S-4 and S-3 must consider the carrying capacity of the firing batteries and support elements. The S-4 submits the forecast to the DIVARTY or FAB S-4.

7-45. To sustain tactical operations, operational planners determine their munitions requirements and develop an RSR. RSRs are computed by S-3s as rounds per weapon per day. Sustainment planners at the expeditionary sustainment command and theater support command consider the RSR, available stocks, and due in stocks, and develop a CSR. The CSR limits the issue of munitions that are in short supply. If the RSR exceeds the CSR, the commander determines who receives the ammunition. CSRs may be published in the OPORD or as a fragmentary order. They may be included in the FS plan, FA OPORD/FASP.

Ammunition Terms

7-46. Utilize common ammunition terms, to include:

- Army Regulation 5-13 discusses combat load as the standard quantity and type of munitions an individual weapon, crew-served weapon or a weapons platform and its modified table of organization and equipment designated munitions carriers are designed to hold. Combat loads for bulk munitions (grenades, signals, and so forth) are not associated with a weapon or weapons platform. Bulk munition combat loads are assigned by standard resource code and reflect the quantity of munitions required to give units capability and flexibility. Combat loads support the initiation of combat operations and are the basic building blocks of Army war reserve requirements.
- **The *required supply rate* is the amount of ammunition expressed in terms of rounds per weapon per day for ammunition items fired by weapons, in terms of other units of measure per day**

for bulk allotment, and other items estimated to be required to sustain operations of any designated force without restriction for a specified period. Tactical commanders use this rate to state their requirements for ammunition to support planned tactical operations at specified intervals. The RSR is submitted through command channels. It is consolidated at each echelon and is considered by each commander in subsequently determining the CSR within the command.

- **The *controlled supply rate* is the rate of ammunition consumption that can be supported, considering availability, facilities, and transportation. It is expressed in rounds per unit, individual, or vehicle per day.** The Army service component commander announces the CSR for each item of ammunition, and, in turn, each tactical commander announces a CSR to the next subordinate tactical commander. A unit may not draw ammunition in excess of its CSR without authority from its next higher HQ. The CSRs may be published in the OPORD or as a fragmentary order. They are included in the FS plan or the FASP.
- Ammunition for immediate consumption is ammunition drawn for a specific purpose, such as a preparation. This ammunition is drawn in addition to the CSR. It is drawn to be expended within the next 24 hours and is considered expended when issued. If circumstances preclude expenditure as planned, the battalion must report this ammunition as excess daily until it is expended or reallocated.
- An *ammunition transfer holding point* is a designated site operated by a brigade support battalion distribution company where ammunition is received, temporarily stored, or transferred to supported units within a functional or multifunctional brigade (ATP 4-35). May also temporarily hold or store ammunition as required.
- An expeditionary support package is a single or multi-type load of ammunition built to the anticipated or actual needs of a firing unit, thereby facilitating throughput to the lowest echelon. Expeditionary support packages are often designed to fit standard transportation assets and for transportation as a single unit. FA munitions are packaged and delivered in completed rounds (for example, fuzes, primers, propellants, and projectiles). See Table 7-2 for FA examples of expeditionary support packages.
- Descriptions of other ammunition loads may be found in Army Regulation 5-13.

Table 7-2. Field artillery expeditionary support packages (example)

Example Package G				
#	***DODIC***	***Nomenclature***	***Quantity***	***Percent***
1	D529	M795 HE	4 Pallets (32 projectiles)	18
2	D563	M483A1 DPICM	18 Pallets (144 projectiles)	82
3	DA12/DA13	M231, M232, MACS	2 Pallets (168 propellant charges)	74
4	N340	M739, Fuze, PD	1 Box (16 fuzes)	9
5	NA09	M782, Fuze, MOFA	1 Box (16 fuzes)	9
6	NA17	M762A1, Fuze, ET	9 Boxes (144 fuzes)	82
7	N523	M82, Primer	1 Box (500 primers)	100+
Total Weight: 13 Short Tons				
Example Package J, Smoke				
#	***DODIC***	***Nomenclature***	***Quantity***	***Percent***
1	D528	M825 Smoke	20 Pallets (160 projectiles)	100
2	DA12/DA13	M231, M232, MACS	1 Pallet (84 propellant charges)	53
3	NA17	M762A1, Fuze, ET	10 Boxes (160 fuzes)	100
4	N523	M82, Primer	1 Box (500 primers)	100+
Total Weight: 12 Short Tons				
DODIC - department of defense identification code, DPICM - dual purpose improved conventional munitions, ET - electronic time, HE - high explosive, MACS - modular artillery charge system, PD - point detonating, MOTA - multi-option artillery fuze, VT - variable time				

Required Supply Rate Calculation

7-47. The RSR is the FA battalion's estimate of the amount of ammunition it will require for an operation. Determining the RSR is the responsibility of the battalion S-3 and can be accomplished in several ways. These include personal experience, historical data from similar battles and use of automated planning factors on the operations logistics planner's software. RSR reporting requirements may verify with tactical SOP and the situation. Generally, the RSR is submitted through the supported maneuver force or senior FA HQ, with information copies to appropriate HQ. RSRs are consolidated and reviewed at higher HQ and used in determining the CSR for each unit. The FA battalion will generally receive its CSR through the same channels that it reports its RSR.

7-48. The manual method discussed here provides a method in computing a RSR for artillery ammunition. Determine the RSR steps, which include:

- Step 1-Determine the level of the operation using Table 7-3.

Table 7-3. Levels of operation

Level of Operation	*Percent of Commitment*		*Commitment of Higher Headquarters Reserves*
	Maneuver	*Fire Support*	
Heavy	60+	100	Probable
Moderate	30+	50+	Not Anticipated
Light	30-	50-	No

- Step 2-From Table 7-4, select the type of weapon system for which the RSR is being calculated. Rounds are expressed in number of rounds per tube per day.
- Step 3-Select the type of operation and level of operation in Table 7-4. If the type of operation is not listed, use the conversion table listed in Table 7-5 on page 99.
- Step 4-Compute ammunition requirements for the operation by using Table 7-4:
  - Day 1-Number of rounds required for the first day extracted from the first day column in the table.
  - Day 2-4-Number of rounds from the succeeding day's column multiplied by the number of days to be computed (see Note (1), Table 7-4).
  - Day 5-Average the number of rounds from the succeeding and protracted days for the weapon system (see Note (1), Table 7-4).
  - Day 6-15-Number of rounds from the protracted day's column multiplied by the number of days (see Note (1), Table 7-4).

Table 7-4. Daily ammunition requirements - rounds per weapon and short ton (example)

Type of Operation	*Level of Operation*	*First Day*		*Succeeding Days1*		*Protracted Period2*	
		Rounds	*STON*	*Rounds*	*STON*	*Rounds*	*STON*
105mm Howitzer							
Covering Force	1- Heavy	491	16.8	511	17.5	198	6.8
	2- Moderate	319	10.9	332	11.4	129	4.4
	3- Light	172	5.9	179	6.1	69	2.4
Defense of Position	1- Heavy	423	14.5	467	16.0	222	7.6
	2- Moderate	275	9.4	304	10.4	144	4.9
	3- Light	148	5.1	163	5.6	78	2.7
Attack of Position	1- Heavy	376	12.9	381	13.0	210	7.2
	2- Moderate	244	8.4	248	8.5	137	4.7
	3- Light	132	4.5	133	4.6	74	2.5

Table 7-4. Daily ammunition requirements - rounds per weapon and short ton (example) continued.

Type of Operation	*Level of Operation*	*First Day*		*Succeeding Days1*		*Protracted Period2*	
		Rounds	*STON*	*Rounds*	*STON*	*Rounds*	*STON*
155mm Howitzer							
Covering Force	1- Heavy	254	17.2	274	18.6	174	11.8
	2- Moderate	165	11.2	178	12.1	113	7.7
	3- Light	89	6.0	96	6.5	61	4.1
Defense of Position	1- Heavy	203	13.8	207	14.0	183	12.4
	2- Moderate	132	9.0	135	9.2	119	8.1
	3- Light	71	4.8	72	4.9	64	4.3
Attack of Position	1- Heavy	146	9.9	153	10.4	140	9.5
	2- Moderate	95	6.4	99	6.7	91	6.2
	3- Light	51	3.5	54	3.7	49	3.3
1 Succeeding days are the second, third and fourth days of the battle. For the fifth day ammunition requirements, take the average of the succeeding days rate and the protracted rate. 2 Protracted period refers to days 6 through 15. For estimating ammunition requirements for periods greater than 15 days, use rates provided in Safety Bulletin 38-26, (c) Non-nuclear Ammunition Supply Rates. 3 STONS - short tons are computed based on total weight per complete round: 105mm - 68.5 lbs/rd, 155mm - 135.7 lb/rd							
lbs - pounds, mm - millimeter, rd – round, STON – short ton							

Table 7-5. Conversion factors table

Type of Operation	*Conversion Factor*
Attack of a Position	100% of attack of position (deliberately organized)
Covering Force	100% of defense of position
Inactive Situation	80% of protracted period
Meeting Engagement	200% of protracted period
Pursuit	50% of protracted period
Retrograde Operation	59% of defense of position (succeeding days)
Assault of Hostile Shore	100% of defense of position (succeeding days)

- Step 5-Beyond day 15, use safety bulletin 38-26.
- Step 6-Divide the total rounds by the number of days in the operation. This will give the number of rounds per tube per day.

7-49. Ammunition supplies are provided from the supported higher HQ ammunition transfer holding point (within the brigade support area) to the FSC. They are carried forward with the next logistics package, or immediately, as required. Ammunition and explosives are accounted for and provide proper physical security.

CLASS VI

7-50. Soldiers usually carry 30 days of personal comfort items with them when deploying. They replenish their own supplies through the Army and Air Force Exchange System or local purchase.

7-51. Health and comfort packs provide forward area troops everyday necessities required when the exchange system is not available. Delivery of health and comfort packs is based on headcounts provided for field feeding.

CLASS VII

7-52. Units normally deploy with required equipment based off their modified table of organization and equipment. There may be additional equipment issued in the joint operations area. Battery commanders must ensure their supply SGTs establish accountability on new equipment by creating hand receipts from packing lists or inventory. Report new equipment through the battalion S-4 and brigade S-4 to the appropriate property

book officer. Property book officers account for and order Class VII and other non-expendable items in the supported higher HQ.

7-53. Class VII replacement is based on losses reported through command channels to the brigade S-3 and S-4 per unit SOP. This permits the commander to remain apprised of the operational status of subordinate commands, and to direct the distribution of items to those units having the most critical need. Replacement Class VII equipment is delivered to the supported higher HQ in the brigade support area. The brigade S-4 and BSB sustainment officer should confirm if replacement weapons systems (for example, howitzers) will be delivered with basic issue items, additional authorized list, munitions, and crew. This allows the battalion S-3 and S-4 to better apportion replacements. Low density, specialized equipment in the battalion may require additional evaluation by Department of the Army civilians or contractors before classifying it as a loss.

CLASS VIII

7-54. Role 1 medical treatment facilities deploy with a three-day supply of consumable medical supplies, and the battery deploys with fully stocked CLS bags. Individual Soldiers should deploy with a 180-day supply of their prescribed medications. As they deploy, Soldiers must advise their supporting medical personnel of their specific needs so the medical sustainment system can sustain these prescriptions.

CLASS IX

7-55. Each battery stocks and deploys with combat spares for repair parts (for example, weapons and radio maintenance). Battery spares are a combination of prescribed load list, shop stock, and bench stock. The FSC also has combat spares or shop stock to support maintenance of vehicles, generators, and other equipment.

7-56. The battery supply SGT and maintenance personnel replenish their combat spares and order other parts as needed through the FSC to the BSB. Class IX repair part requisitions are prioritized based on the commander's priority of maintenance and need.

CLASS X

7-57. The FA battalion supports stability tasks operations by providing FS to assist in maintaining stability and security. This can include establishing secure operational areas to safely transport class X relief supplies for foreign humanitarian assistance and reconstruction efforts. For more information, you can refer to FM 3-07.

TRANSPORTATION

7-58. The FA battalion is 100% mobile with organic vehicles and trailers. The BSB, including the FSC is mobile for organic equipment, and has been designed to be mobile with three combat loads for FA units. The BSB commander, in coordination with the supported commander, may choose to sacrifice mobility for extra supply stocks. If the BSB's limited assets are committed, and extra transportation is required, the brigade S-4 requests transportation assets from higher HQ.

SECTION V – EXPLOSIVE ORDNANCE DISPOSAL

7-59. Explosive ordnance disposal (EOD) capabilities are not organic to FA units. Request EOD augmentation from higher HQ to support operations. Requests for EOD support are processed through the brigade or division, who then forwards the request to the supporting EOD HQ.

7-60. Once unexploded ordnance is located, the locating unit will send an EOD 9 Line Report through their chain of command requesting EOD support. If there is a constant presence of explosive hazards, such as explosive ordnance, EOD teams may be assigned a DS or GS support relationship to the FA battalion.

SECTION VI – FINANCIAL MANAGEMENT

7-61. The battalion has no organic financial management support assets. Financial management detachments are deployed to provide area financial support to a brigade or equivalent size unit, or as directed by the financial management company commander.

7-62. Financial management support includes banking and currency support, disbursing support, tracking cost and accounting, host nation support, and limited pay support. Typical finance requirements of the FA battalion include temporary duty requests, purchase requests and commitments, and multinational support.

SECTION VII – HUMAN RESOURCES SUPPORT

7-63. Human resources support operations are embedded within the battalion S-1 section. The S-1 plans, provides, and coordinates the delivery of human resources support, services, or information to all assigned or attached personnel.

7-64. Human resources support beyond the capability of the S-1 is coordinated with the BSB S-1. The S-1 is the coordinating office for medical, financial management, and the Red Cross. For more information, see ATP 1-0.1.

SECTION VIII – RELIGIOUS SUPPORT

7-65. Each battalion has a unit ministry team, consisting of a chaplain and religious affairs assistant, to provide religious support to their Soldiers. The chaplain serves the commander as a personal staff officer.

7-66. The chaplain plans, synchronizes, and coordinates religious support, within the battalion AO. The DIVARTY unit ministry team is responsible for the technical oversight of the unit ministry teams in subordinate units. For more information see ATP 1-05.01.

SECTION IX – LEGAL SUPPORT

7-67. The brigade legal section provides legal support to the command, brigade staff, and subordinate battalions across the Judge Advocate General's Corps legal disciplines: military justice, international and operational law, administrative and civil law, contract and fiscal law, claims, and legal assistance. The Judge Advocate usually locates the legal section in the main CP to provide immediate support to the commander and the fires element.

7-68. Each battalion typically has a paralegal NCO assigned to the S-1 section to provide immediate legal support to battalion commanders and staff, although they remain under the supervisory control of the judge advocate. See FM 3-84, Legal Support to Operations, for additional information about the legal section support.

SECTION X – ARMY HEALTH SYSTEM

MEDICAL PLATOON

7-69. The medical platoon is the focal point of Army health system support for the battalion. The platoon receives, treats, and evacuate patients and coordinates further MEDEVAC, as required. It establishes and operates the BAS, which is the primary role 1 medical treatment facility for the battalion. For more information on medical platoon operations, refer to ATP 4-02.4.

COMBAT LIFESAVERS

7-70. The CLS is a nonmedical Soldier selected by the unit commander for additional training beyond basic first aid procedures. A minimum of one individual per squad, crew, team, or equivalent-size unit should be trained. The primary duty of this individual does not change. The additional duty of the CLS is to provide

enhanced first aid for injuries before the combat medic arrives. The CLS is usually the first person on the scene to begin the process of providing enhanced first aid to wounded and injured personnel. The CLS is not intended to take the place of medical personnel, but to stabilize a wounded or injured Soldier's condition until medical personnel arrive.

SECTION XI – MAINTENANCE

7-71. The Army has two levels of maintenance, field and sustainment. Field maintenance consists primarily of replacing parts on the user's system. It is generally a merging of organizational and DS levels of maintenance. Field-level maintainers are concentrated in the BSB, either in the supported higher HQ BSB's FSC or the field maintenance company.

7-72. Sustainment maintenance consists of repairing components removed from the user's system. Sustainment maintenance is generally a merging of the former GS and depot levels of maintenance. Generally, sustainment-level maintainers are in the sustainment brigade, usually in a component repair company.

FIELD MAINTENANCE

7-73. Field maintenance is on-system maintenance and is mainly preventive maintenance and replacement of defective parts. Field maintenance returns repaired equipment to the Soldier. It includes some off-system maintenance critical to mission readiness.

7-74. Battery commanders ensure that vehicle crews and equipment operators perform preventative maintenance checks and services. To provide quick turnaround of maintenance problems, each battery has a field maintenance team from their supporting FSC dedicated to support them. These field maintenance teams have contact maintenance trucks and mechanics trained in the company's equipment.

7-75. The FSC performs field maintenance. The FSC has a maintenance platoon that repairs automotive, armament, ground support, electronic, and missile equipment. The FSC focuses online replaceable unit replacement, using combat repair team and field maintenance team stocks, on board spares and shop stock. It has a service and recovery section and performs battle damage assessment and repair. The FSC's maintenance control section orders and manages repair parts. The FSC commander establishes unit maintenance collection points in coordination with the FA battalion S-4.

7-76. The maintenance platoon leader task-organizes the maintenance platoon according to directives received from the FSC commander. The battalion XO, S-3, S-4, and FSC commander analyze the current and anticipated support requirements and recommend to the FA battalion commander the maintenance concept to be used. They will recommend to the commander the appropriate support at battery, maintenance collection point, CP, and trains locations.

7-77. In most tactical situations, the FSC will provide each FA battery a maintenance support team. In some instances, the FSC's recovery vehicles may also be positioned forward with each firing battery but remain under battalion control. This provides a quick-fix capability for those items that can be repaired quickly without hindering tactical operations and a recovery capability for those items requiring repairs that are more extensive.

7-78. The rest of the maintenance platoon is in the combat trains under the control of the maintenance platoon SGT. The platoon maintenance section performs maintenance on FSC and HHB equipment and assists the field maintenance teams, as required. Maintenance of low density, specialized equipment usually requires maintenance by Department of the Army civilians or contractors. The battalion S-4 must coordinate through the FSC for specific management procedures for this maintenance.

SUSTAINMENT MAINTENANCE

7-79. *Sustainment maintenance* is off-system component repair and/or end item repair and return to the supply system or by exception to the owning unit, performed by national level maintenance providers (ATP 4-33). Sustainment maintenance actions typically involve repair of repairable Class IX components, off-system, for return to the supply system. Examples of sustainment maintenance include inside-the-box repair of line replaceable units and rebuild of engines and transmissions.

7-80. A repairable is an item that can be cost-effectively repaired. When a repairable such as a diesel engine or turbine fuel control malfunctions, it can be replaced by a repaired or rebuilt component; it usually does not need to be replaced by a new item. Although the mechanics in the supported higher HQ cannot repair unserviceable repairables, the component repair companies in the sustainment brigade need those unserviceables to create serviceable repair parts.

SECTION XII – SUPPORT AREAS

7-81. A *support area* is the portion of the commander's area of operations that is designated to facilitate the positioning, employment, and protection of base sustainment assets required to sustain, enable, and control operations (ADP 3-0). Types of support areas include the brigade support area, battalion trains, and battery trains.

7-82. The brigade support area is the logistical, personnel, and administrative hub of the supported higher HQ. It consists of the BSB but could also include a supported higher HQ alternate CP, battalion field trains, brigade engineer battalion units, air and missile defense assets, signal assets, and other sustainment units from higher HQ. The brigade support area is located to maintain support to the supported higher HQ, but not to interfere with the tactical movement of supported higher HQ units, or with units that must pass through the supported higher HQ area. Usually, the brigade support area is on a main supply route and ideally is out of the range of the enemy's medium artillery. The brigade support area should be positioned away from the enemy's likely avenues of approach.

TRAINS

7-83. Trains are a unit grouping of personnel, vehicles, and equipment to provide sustainment. It is the basic sustainment tactical organization. Battalions use trains to array their subordinate sustainment elements, including their FSC. Battalion trains usually are under the control of the battalion S-4 and assisted by the battalion S-1.

7-84. The composition and location of battalion trains varies depending on the number of units attached to, or augmenting, the battalion. The battalion trains can be employed in two basic configurations, as unit trains or as echeloned trains. See ATP 3-90.5 for additional information on sustainment trains.

UNIT TRAINS

7-85. When logistical support resources are centralized in one location, they are called unit trains. There are benefits to utilizing this option, which include:

- Coordinated control and a single base for logistical personnel and equipment.
- Enhanced security and capability for ground defense.

7-86. Unit trains may be appropriate in slow-moving or static situations, when the tactical situation forces the trains to be a self-contained operation, during reconstitution, when the battalion is in an assembly area, or during an extended tactical march. Unit trains normally consist of the FSC sustainment assets, except for field maintenance teams positioned with the firing batteries and possibly a maintenance collection point. The maintenance collection point may be positioned closer to the firing batteries or near the FA battalion CP to facilitate rapid repair and evacuation of equipment. The FSC commander is responsible for and commands unit trains.

7-87. Towed FA battalions normally lack sufficient resources to effectively use the echeloned trains concept and typically operate under a unit trains organization. The unit trains are normally in or near the brigade

support area. The commander will configure the field artillery battalion trains to meet operational requirements. For an example of how field and combat trains are configured see Table 7-6.

Table 7-6. Field trains and combat trains (example)

Field Trains	*Combat Trains*
FSC (-)	FSC (-) FWD
FSC Command and First Sergeant	Field Maintenance Teams
Maintenance Platoon Headquarters (-)	Maintenance Collection Point
Maintenance Section	Maintenance Control Section
General Supply Section	Class III Section (-)
Class III Section (-)	Class V Section (-)
Class V Section (-)	Field Artillery Battalion S-1 and S-4 (-)
Field Artillery Battalion S-1 and S-4 (-)	
FSC – forward support company, FWD - forward, S-1 - battalion or brigade personnel staff officer, S-4 – battalion or brigade logistics staff office	

ECHELONED TRAINS

7-88. The battalion trains may consist of three types (for example, battery trains, combat trains and field trains). The preferred method of supporting the SP FA battalion is through echeloned trains. There are also benefits to utilizing this option, which include:

- Immediate responsive forward support tailored to the tactical situation.
- Flexible resource usage.
- Increased resource survivability and enhanced responsiveness when the tactical situation is fluid or when the battalion is operating over extended distances.

BATTERY TRAINS

7-89. Battery trains may be formed to provide sustainment for a battery during combat operations. The battery organizes its organic and attached sustainment assets into its battery trains, which usually include the 1SG and medical aid and evacuation teams. The supply SGT and armorer are generally located in the battalion field trains. Generally, the battery trains include a maintenance support team from the FSC, with capabilities for maintenance, recovery, and limited combat spares.

COMBAT TRAINS

7-90. The battalion combat trains usually consist of the FSC and the BAS and are organized to provide immediate critical sustainment support to the FA batteries. The combat trains are the hub of sustainment operations for the battalion. When the combat trains are collocated with the battalion CP, the HHB commander may be designated as the commander of the combat trains. When the combat trains are located away from the HHB CP area, the FA battalion commander designates who commands the combat trains. The battalion trains CP is located in the combat trains, and the S-4 may be responsible along with the FSC commander for supervising and managing this CP.

7-91. The S-4 section along with FSC personnel may form the basis of a combat trains CP, which may be established to plan and coordinate sustainment for tactical operations. Although the combat trains CP may serve as an alternate main CP in maneuver battalions, the combat trains CP typically does not have the communications and tactical fire control capabilities to do so for a FA battalion. If the combat trains CP is required to take command of the battalion, the automated system capability for tactical fire direction is provided from the battalion CP. When established, the combat trains CP usually consists of the elements of the FSC, battalion S-1, and battalion S-4. Most of the time, the S-4 is the officer in charge of the combat trains CP. There are situations that may dictate the need for a combat trains CP, which include:

- Fast-moving, fluid operations.
- BSB forward element operations.
- Reception, staging, onward movement, and integration operations.

7-92. Determine the optimum balance of combat trains elements, to include:

- The S-1 and S-4 (minus) combat trains CP.
- Maintenance control section.
- Petroleum, oil, and lubricant (for example, emergency resupply to the batteries and platoons).
- Ammunition (for example, emergency distribution to the firing platoons).
- BAS.
- Decontamination assets.
- Elements of the communications platoon.
- Maintenance collection point.
- Maintenance support teams with recovery, if not forward with batteries.

7-93. The combat trains are located close enough to be responsive to the forward batteries and platoons but, if possible, they should not be within range of enemy indirect fire. They generally occupy an area between the brigade support area or the field trains (if deployed separately) and about one to four kilometers behind the forward battery or platoon PAA. Combat trains may move often to stay in supporting distance of the firing units.

7-94. The combat trains CP is the focal point of battalion sustainment operations. The CP concentrates on ammunition and POL resupply, priority equipment repair and salvage, and emergency medical care. The combat trains post must stay abreast of the tactical situation to include monitoring the battalion command network, identifying logistic support requirements, and receiving requests, reports, and requirements from subordinate elements.

7-95. The combat trains CP uses automated systems to maintain tactical situational awareness. The S-4 also operates the battle command sustainment support system (referred to as BCS3). This system provides the capability to monitor and track requests for and the status of repair parts and supplies for the FA battalion. It provides the FA battalion with the capability to develop sustainment estimates for future operations as well as provides the commander with the status of sustainment operations supporting current operations.

7-96. Logistic personnel analyze, consolidate, and forward battalion requirements to the battalion sustainment center (field trains). The battalion sustainment center coordinates with and directs elements of the FSC in the FA battalion support area to take actions to meet the requirements of the forward units.

7-97. The FA battalion often establishes a maintenance collection point to provide forward maintenance support to the battalion. The FSC commander may designate either the maintenance platoon leader or platoon SGT as the commander of the maintenance collection point.

7-98. Under the echeloned trains concept, the maintenance collection point may locate in the combat trains, especially when increased security is required. However, the unit may also establish the maintenance collection point outside of, but near the combat trains to facilitate mission accomplishment, as required.

FIELD TRAINS

7-99. Field trains include those assets not located with the combat trains. The field trains can provide direct coordination between the battalion and the BSB. The field trains personnel assist the coordination and movement of support from the BSB to the battalion by ensuring that logistics packages are organized and configured per the unit's requests and that the logistics packages make it forward to the release points and back to the brigade support area.

7-100. The field trains may collocate with the brigade support area, operate independently between the brigade support area and combat trains, or collocate with trains of another FA or maneuver battalion. The threat and the distances between the forward elements of the battalion and the brigade support area affect the field trains' location.

7-101. If the battalion is operating within the support distance of the brigade support area, the battalion field trains may collocate with the BSB in the brigade support area. This facilitates support by the BSB, eases communications requirements, simplifies security requirements, and reduces the need for additional coordination with the supported higher HQ for terrain. When collocating with the BSB, the field trains fall under the OPCON of the BSB commander for movement, security, terrain management, and synchronization of sustainment activities. The positioning needs of the battalion must be coordinated with the BSB. If possible, the battalion field trains should be positioned near the exit points of the brigade support area in

order to move forward to better support the battalion. If the battalion is operating at extended ranges from the brigade support area, the field trains may be positioned between the BSB and the battalion to better facilitate support.

7-102. The battalion field trains CP may act as the primary direct coordination element between the FA battalion and the brigade support area. When established, the field trains CP usually consists of the elements of the FSC, FA battalion S-1 and S-4, and selected HHB personnel (for example, HHB commander or XO, 1SG, CBRN NCO, and supply SGT). The FA battalion commander may determine the officer or NCO in charge of the field trains CP. Situations that may dictate the need for a field trains CP include periods of supply or resupply of major end items or periods when sustainment elements of the squadron are no longer 100% mobile. The field trains CP tracks the current battle; plans for sustainment of future operations; provides sustainment representation to the main CP for planning and integration; forecasts and coordinates future requirements; and coordinates the return to duty of Soldiers and repaired equipment.

7-103. The designated trains commander is responsible for trains security. In trains areas, a perimeter defense is planned. Elements in the trains are assigned a specific sector to defend. Mutually supporting positions that dominate likely avenues of approach are selected for vehicles armed with crew-served weapons. Reaction forces and observation posts are established in accordance with the tactical SOP. To enhance security, an alarm or warning system (such as rocket, artillery, missile warning) is arranged. Sector sketches, fire plans, and obstacle plans should be prepared. The designated trains commander directs rehearsals to ensure that personnel know the parts they play in the defensive scheme.

SECURITY OF SUPPORT AREAS

7-104. Sustainment elements must organize and prepare to defend themselves against ground or air attacks. The number of support areas established depends upon METT-TC (I). The more areas that are established, the more difficult they become to defend as personnel and defensive means are spread over multiple locations. The security of the trains at each echelon is the responsibility of the individual in charge of the trains. The best defense is to avoid detection. Determine considerations that enable trains security, which include:

- Select trains sites that use available cover, concealment, and camouflage.
- Use movement and positioning discipline, as well as noise and light discipline to prevent detection.
- Establish a perimeter defense.
- Establish observation posts and patrols.
- Position weapons for self-defense.
- Plan mutually supporting positions.
- Prepare a fire plan and make sector sketches.
- Identify sectors of fires.
- Emplace or select target reference points to control fires, and for use of indirect fires.
- Integrate available combat vehicles within the trains (for example, vehicles awaiting maintenance or personnel) into the plan, and adjust the plan when vehicles depart.
- Conduct rehearsals.
- Establish rest plans.
- Identify an alarm or warning system that would enable rapid execution of the defense plan without further guidance; the alarm, warning system, and defense plan are usually included in the SOP.
- Designate a reaction force. Ensure the force is equipped to perform its mission. The ready reaction force must be well rehearsed or briefed on ROE.
- Unit assembly.
- Friendly and threat force recognition.
- Actions on contact.

SUPPLY ROUTES

7-105. The FA battalion S-4, in coordination with the FSC commander and battalion S-3, select supply routes between support areas. Main supply routes are routes designated within the supported higher HQ AO upon which the bulk of sustainment traffic flows in support of operations. Select a main supply route based on the terrain, friendly disposition, enemy situation, and scheme of maneuver.

7-106. Plan alternate supply routes if a main supply route is interdicted by the enemy or becomes too congested. In the event of CBRN contamination, either the primary or alternate main supply route may be designated as the "dirty main supply route" to handle contaminated traffic. Alternate supply routes should meet the same criteria as the main supply route. Military police and engineer units if available may assist with regulating traffic and maintain routes. Security of supply routes may require the commander to commit non-sustainment resources. See ATP 4-01.45 for convoy operations for further information.

7-107. Determining route considerations, include:

- Location and planned scheme of maneuver for subordinate units.
- Location and planned movements of other units moving through the battalion's AO.
- Route characteristics such as route classification, width, obstructions, steep slopes, sharp curves, and type roadway surface.
- Two-way, all-weather traffic ability.
- Classification of bridges and culverts.
- Requirements for traffic control such as at choke points, congested areas, confusing intersections, or along built-up areas.
- Number and locations of crossover routes from the main supply route to alternate supply routes.
- Requirements for repair, upgrade, or maintenance of the route, fording sites, and bridges.
- Route vulnerabilities that must be protected. This may include bridges, fords, built-up areas, and choke points.
- Enemy threats such as air attack, conventional and unconventional tactics, mines, ambushes, and CBRN hazards.
- Known or likely locations of enemy penetrations, attacks, CBRN hazards, or obstacles.
- Known or potential civilian and dislocated civilian movements that must be controlled or monitored.

SECTION XIII – SUSTAINMENT SUPPORT PLANNING

7-108. Sustainment planning must focus on tasks and systems that provide support and services to the battalion's Soldiers and weapon systems. Sustainment planning must address sustainment support during phases of an operation. The battalion staff develops the sustainment support plan concurrently with the tactical plan. Supporting sustainment plans must be as detailed as the tactical plan and fully synchronized and integrated. Use of tactical SOP and contingency plans greatly help the support staff officers in the planning effort. The FA battalion OPORD or the FASP addresses the key what, where, when, why, and how of logistic support issues as well as deviations from the tactical SOP.

7-109. To develop and execute sound plans, logistic support personnel must achieve and maintain a high degree of situational awareness and initiate actions well before the start of operations they are to support. Careful management of the information flow demands that information requirements be clearly identified early in the process and shared with all involved.

7-110. FA logistics preparation is a conscious effort to identify and assess factors that facilitate, inhibit, or deny support to the FA battalion. Logistic preparation involves a review of known EFATs involving sustainment support and the use of S-2 IPOE products as an aid in analyzing the operating, arming, fueling, fixing, moving, and sustaining factors. The goal is to determine the FA battalion logistic support requirements that will allow the development of a sustainment estimate and a feasible concept of support.

7-111. The logistic preparation process requires that the FA battalion commander, XO, and S-3 understand data needed by sustainment support staff to plan and provide timely, effective support. It requires that the S-1, S-4, and the FSC commander understand the mission, the scheme of maneuver, fires, and battlefield time and space implications for support. Logistics preparation is a coordinated effort, which include:

- Determine data requirements to support required actions.
- Identify sources for pertinent data and collect raw or processed data.
- Analyze collected data and develop it into decision information by assessing the impact on the mission and competing courses of action.
- Integrate decision information into the MDMP by incorporating it into logistical estimates, fires plans, and actions.

7-112. Determine sources that provide relevant logistical data, which include:

- Supported higher HQ briefings, plans, and orders.
- FA battalion commander's planning guidance and intent.
- Operations and intelligence briefings and overlays.
- Wargaming and rehearsals.
- Organizational equipment, subordinate unit status reports, and route reconnaissance overlays.
- Traffic circulation and highway regulation plans.

7-113. A sustainment running estimate, which includes logistics preparation, is a continuous analysis of sustainment factors affecting mission accomplishment. Emphasis is on how the status of logistic support will affect proposed courses of action. Sustainment planners use this estimate to recommend the best COA that can be supported and to develop plans to support the operation.

7-114. The sustainment running estimate at the FA battalion level is usually informal. At a minimum it is formulated in a briefing format that should address facts, assumptions, and conclusions, to include:

- Human resources (for example, personnel strength data, gains and losses, status of key personnel, and casualty estimates).
- Ordnance (for example, Class V status; restrictions, distribution system, RSR, CSR, expeditionary support package, maintenance, Class IX status, repair times, and evacuation policy).
- Supply (for example, Class III [bulk] status, distribution system, and restrictions).
- Transportation (for example, status of transportation assets, critical lines of communication, and main supply route status).
- Sustainment of Soldiers and their systems (for example, Classes I, II, III, IV, VI, VII, IX, water, and field services status).
- Courses of action that can be supported.

7-115. Based on mission analysis, compare resources with requirements, evaluate shortfalls in close coordination with operations planners to determine their effect on selected courses of action.

7-116. The sustainment staff must provide the sustainment running estimate in time for commanders to confirm the feasibility of the plan, modify plans and priorities as necessary, and calculate risks. Timely completion also facilitates the generation and coordination of supply and support requests.

SECTION XIV – REFUEL, REARM, RESUPPLY AND SURVEY POINT

7-117. A battalion refuel, rearm, resupply and survey point site may be established to provide critical support to the battery. This technique involves the movement of critical battalion support elements (trains) to a location where the firing elements can pass through and take on needed ammunition and POL. Then the combat trains elements march-order and proceed from the site to a new location. The FA BN staff analyses the operational environment and provides options to the commander for the timing, location, methodology, and associated risk to force and mission in choosing to establish refuel, rearm, resupply and survey points. See figure 7-1 on page 110 for an example of a rearm, refuel, and resupply point in a permissive environment.

SELECTION

7-118. The site should:

- Be on or near the route of march for the firing elements.
- Provide good trafficability.
- Allow cover and concealment.

ORGANIZATION

7-119. In organizing the site, the following should be considered.

- Dispersion.
- Camouflage.
- Operations security.

ACTIVITIES

7-120. Some of the activities that can take place at the battalion refuel, rearm, resupply and survey point are as follows:

- Key personnel (firing battery) briefing.
- Tailoring to meet the needs of the unit.
- POL, ammunition, maintenance, and rations (priorities) resupply.
- Local security (augmented by firing battery).
- Ammunition transfer point activities.

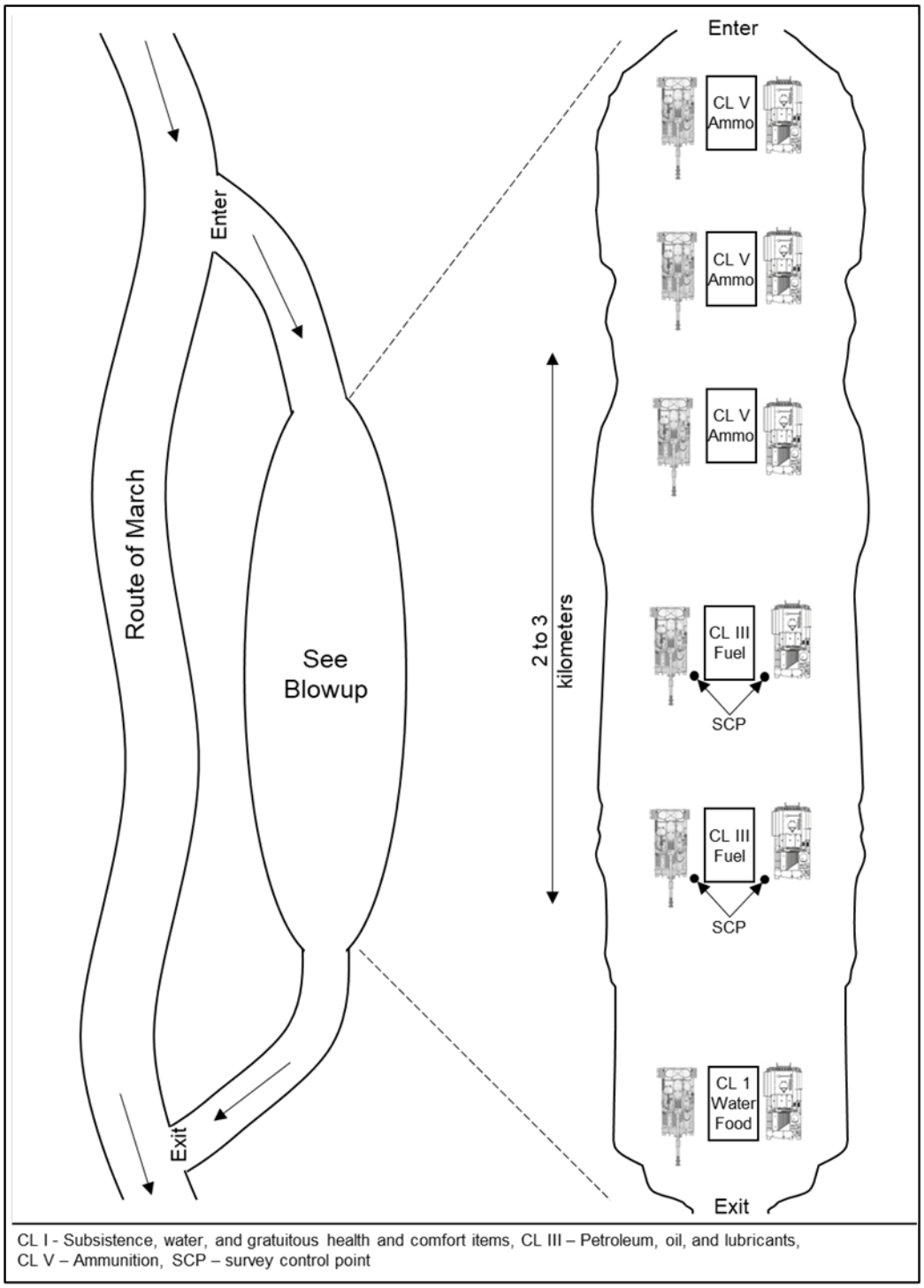


Figure 7-1. Rearm, refuel, and resupply point in a permissive environment

LOGISTICS RELEASE POINT

7-121. The battery logistics release point (LRP) is established normally by the battery 1SG to push routine supplies forward and to facilitate other routine administration. Platoon SGTs meet the 1SG at the LRP daily or in accordance with the unit SOP.

Chapter 8

Unique Characteristics of Individual Field Artillery Battalions

Not all FA battalions are the same, each has unique characteristics based on the equipment assigned and the tasks that they must accomplish. In this chapter the differences from the generic FA battalion are listed for each unique FA battalion.

SECTION I – COMPOSITE FIELD ARTILLERY BATTALIONS

COMPOSITE TOWED FIELD ARTILLERY CANNON BATTALIONS

8-1. A composite battalion is organized with different artillery weapon systems under one battalion HQ. Currently regular Army and ARNG composite battalions are structured the same. With an HHB, and three cannon batteries.

8-2. The battalion has a HHB to provide C2 and administrative support. A FSC from a BSB provides logistical support. The battalion is organized with two batteries of towed 105mm howitzers (2x6) and one battery of 155mm towed howitzers (1x6). The battalion provides responsive and accurate fires to the Infantry BCTs or supported commander. See figure 8-1.

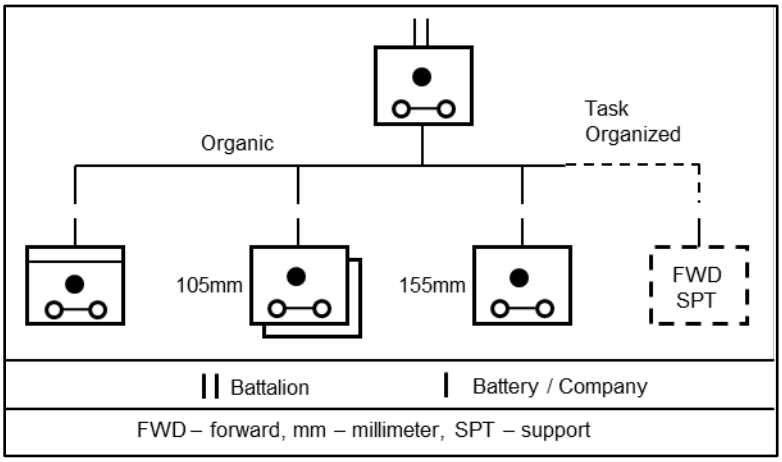


Figure 8-1. Composite battalion

8-3. The HHB is organic to the battalion and is organized and equipped to coordinate administrative, logistical, maintenance, and communications support for the battalion headquarters and firing batteries. The functional elements of the HHB are shown in figure 8-2 on page 112.

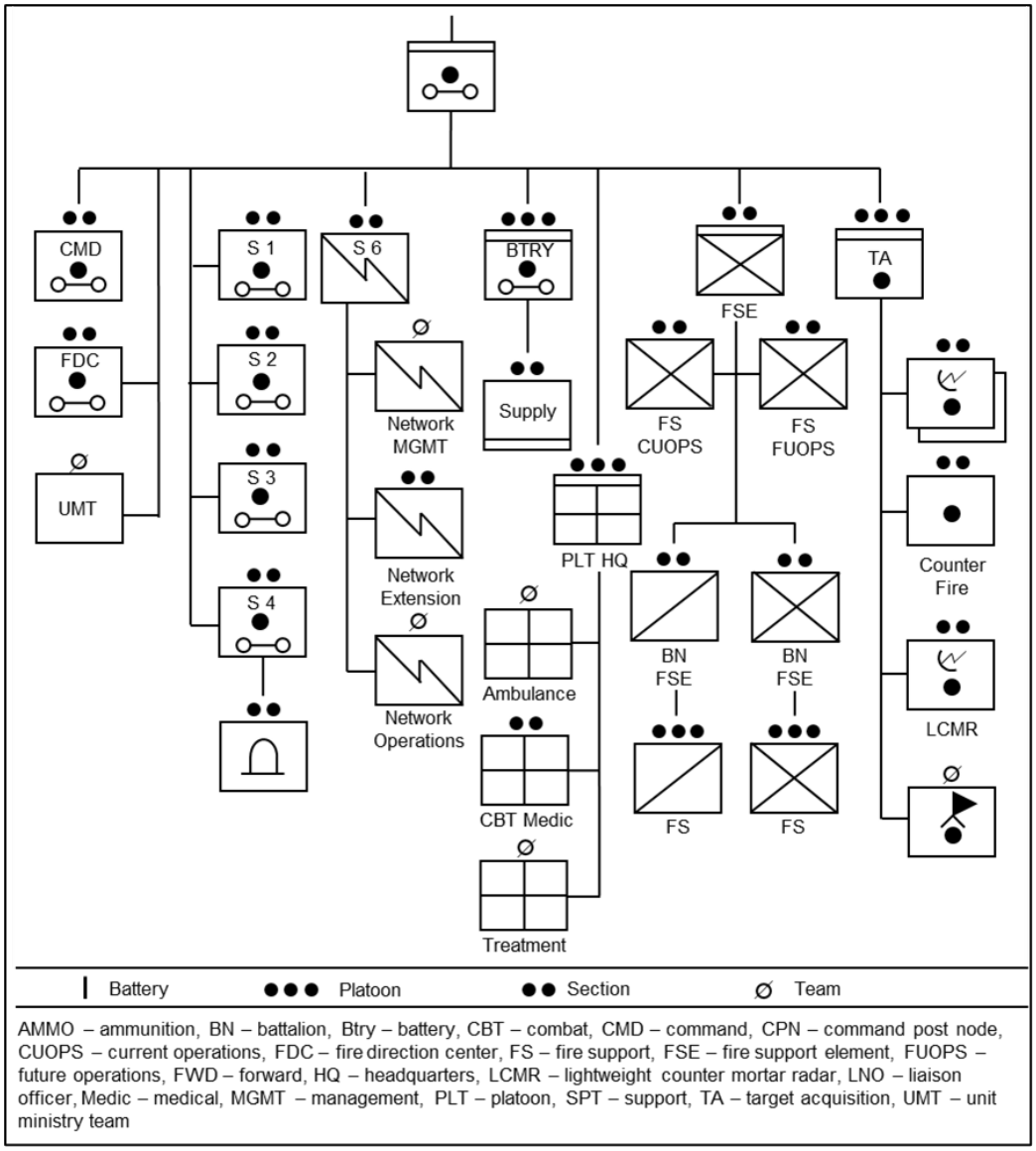


Figure 8-2. Composite battalion headquarters and headquarters battery

COMPOSITE FIELD ARTILLERY MISSILE BATTALIONS

8-4. The long-range fires battalion (known as LRFB) plans, integrates, and directs command, control and administrative supervision for organic and attached units. The LRFB provides long-range and mid-range surface-to-surface theater strategic, and operational level fires in support of the joint force.

ORGANIZATION

8-5. The battalion is organized with a HHB, three firing batteries, and an attached FSC. The HHB and FSC provide C2, administrative services, and logistical support for organic and attached elements. The battalion is tailorable and scalable to meet theater requirements. The attached FSC provides support to the battalion. See figure 8-3 on page 113.

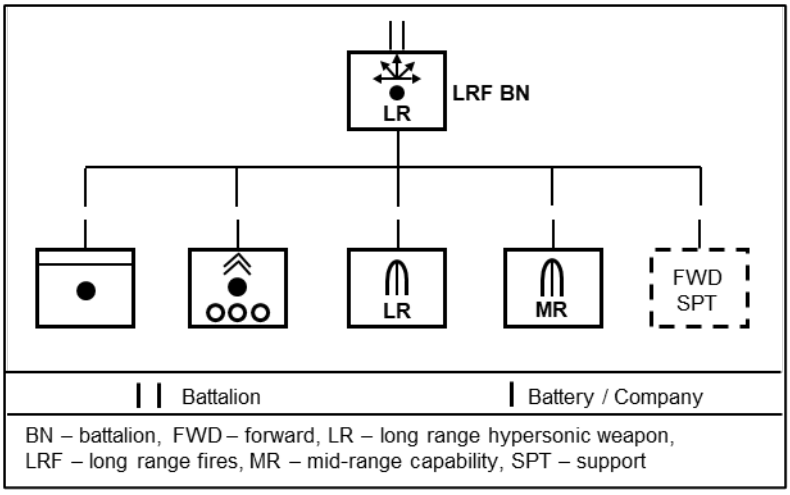


Figure 8-3. Long-range fires battalion

8-6. The HHB operates as a tactical and administrative HQ. The HQ element will be positioned for the most effective control of the battalion assets correlated with the terrain, combat mission, and responsiveness to the higher HQ and supported units. The HHB provides command, control, administrative supervision, and service support for organic and attached elements. It also procures, distributes, administers, and coordinates supply transactions for all classes of supply. In addition, the HHB coordinates unit maintenance support not found within the capabilities of the firing batteries. See figure 8-4 on page 114.

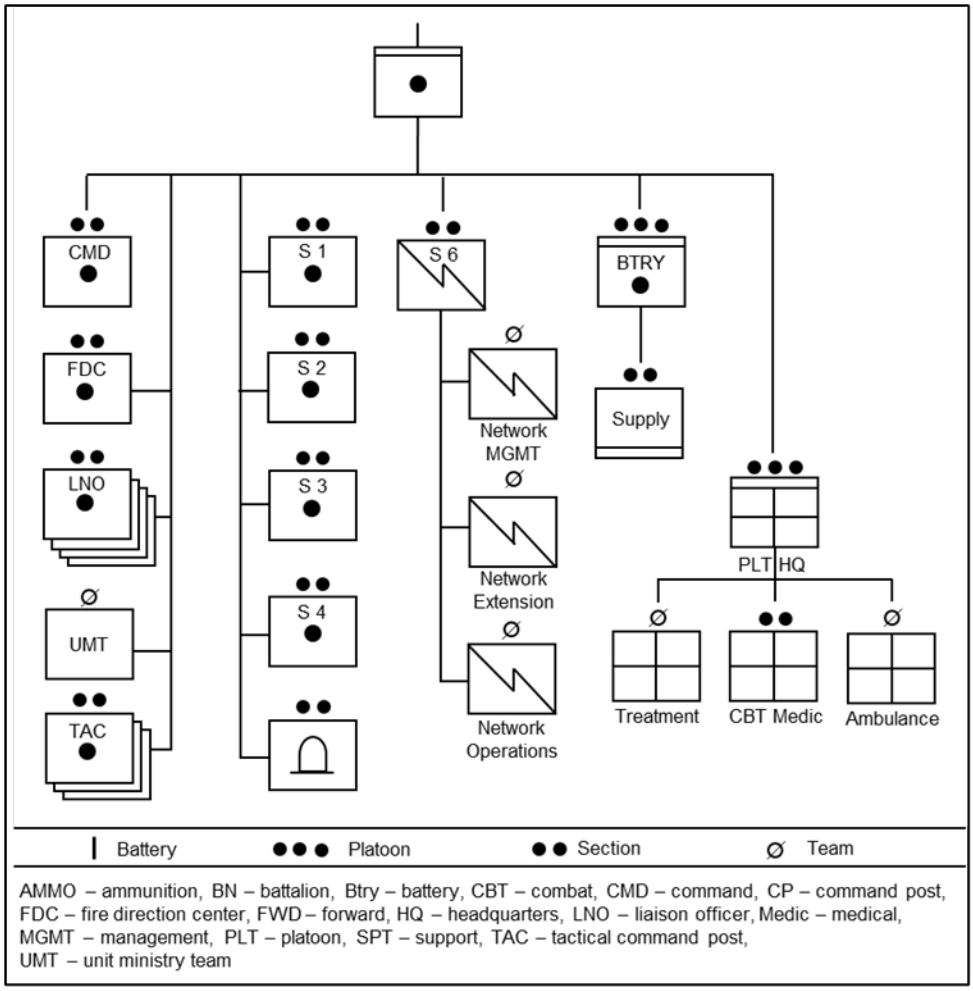


Figure 8-4. Headquarters and headquarters battery

Firing Batteries

8-7. Currently the batteries within the LRFB consist of a long-range hypersonic weapon battery, a mid-range capability battery, and a precision-range strike missile equipped HIMARS battery. The purpose of the LRHW battery is to suppress, neutralize, and destroy the enemy with ground-based strategic fires in support of the joint force in multidomain operations. The purpose of the mid-range capability battery is to suppress, neutralize, and destroy the enemy with ground-based mid-range fires in support of the joint force in multidomain operations. The purpose of the HIMARS battery is to suppress, neutralize, and destroy the enemy with FA rocket and missile fires.

LONG-RANGE HYPERSONIC WEAPON BATTERY

8-8. The LRHW battery consists of a battery HQ, a battery operations center, two firing platoon HQ, four firing sections, a support platoon HQ, a supply section, and an ammunition management section. The battery will be positioned to allow for the most effective response with regards to its supported forces and correlation with the terrain, combat mission and responsiveness to higher headquarters.

8-9. The LRHW battery engages strategic targets at range to generate desired effects. The LRHW battery can operate from designated PAA which consist of developed road networks, level/accessible surfaces, and close or distant ammunition supply points and ammunition holding areas. See figure 8-5 on page 115.

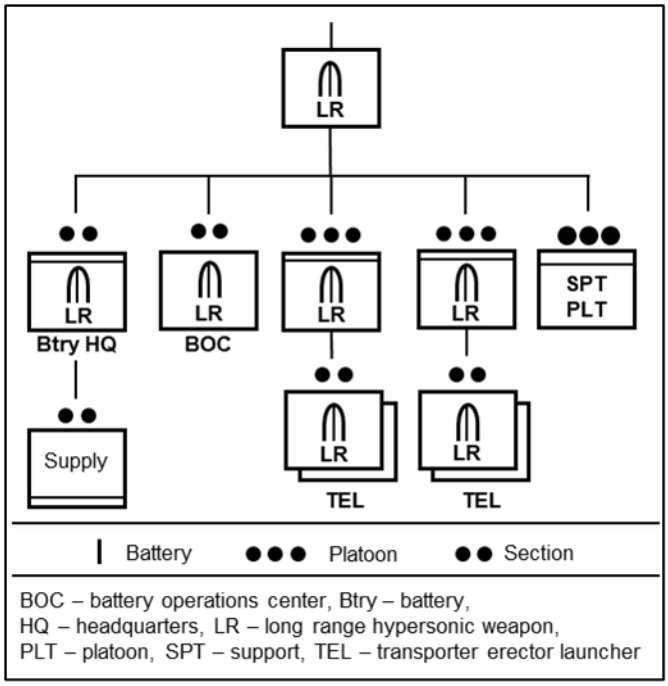


Figure 8-5. Long-range hypersonic weapon battery

MID-RANGE CAPABILITY BATTERY

8-10. The mid-range capability battery consists of a battery HQ, two platoon fire direction centers, four firing sections, a support platoon headquarters, a supply section, and an ammunition section. The battery will be positioned to allow for the most effective response with regards to its supported forces, and in correlation with terrain, combat mission, and responsiveness to higher HQ.

8-11. The mid-range capability battery provides fires on mobile surface-to-surface targets in the land and maritime domains. These fires can consist of pre-planned targets and targets of opportunity that include but are not limited to enemy acquisition assets, command and control facilities, long-range theater missile systems, surface-to-air missile sites, and logistics support areas (in accordance with Army depth and simultaneous attack doctrine). See figure 8-6.

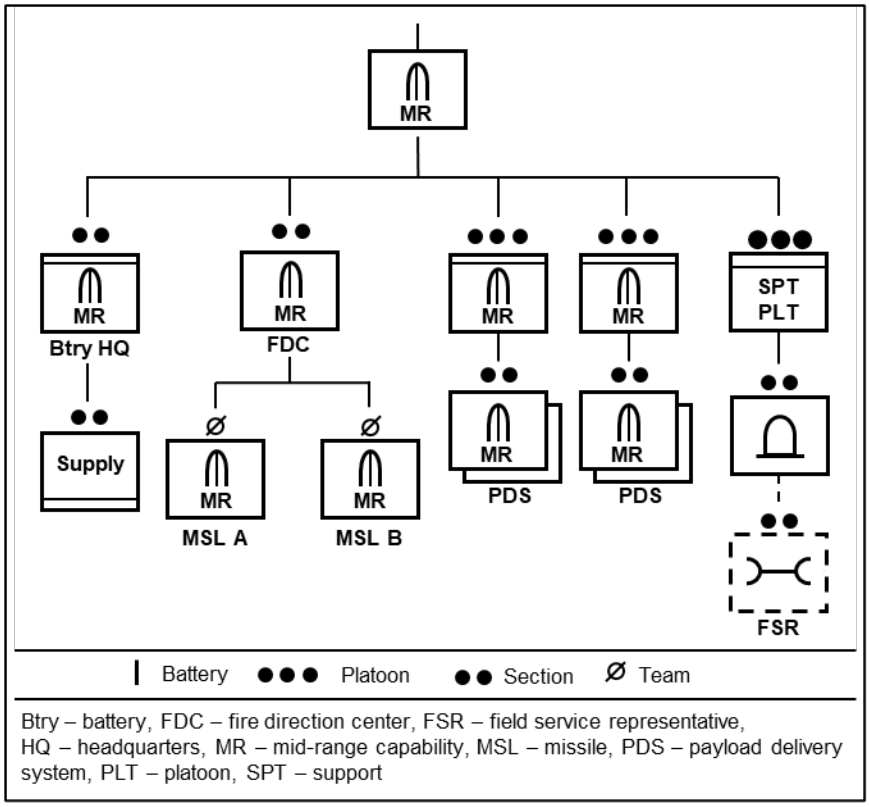


Figure 8-6. Mid-range capability battery

HIGH MOBILITY ARTILLERY ROCKET SYSTEM BATTERY

8-12. The precision-range strike missile equipped HIMARS battery consists of a battery HQ, a battery operations center, three firing platoon HQ, nine firing sections, a support platoon HQ, supply section, and an ammunition management section. The battery will be positioned to allow for the most effective response with regards to its supported forces, and in correlation with terrain, combat mission, and responsiveness to higher headquarters.

8-13. The HIMARS battery provides rocket and missile fires on pre-planned targets and targets of opportunity that include, but are not limited to enemy acquisition assets, command and control facilities, long-range theater missile systems, surface to air missile sites, logistics support areas, and armored mobile formations (in accordance with Army depth and simultaneous attack doctrine). See figure 8-7 on page 117.

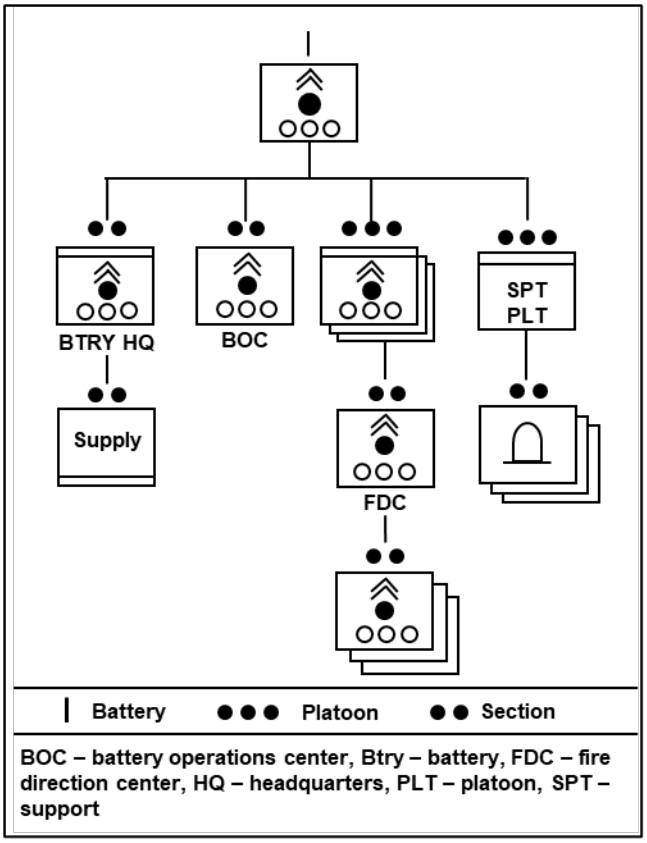


Figure 8-7. High mobility artillery rocket system battery

SECTION II – STRYKER (155MM TOWED) CANNON BATTALIONS

8-14. The Stryker battalion both regular Army and ARNG is organized with three M777 (155mm towed) howitzer batteries (3X6) in support of the Stryker brigade combat team (SBCT). The ARNG also has echelons above brigade FA battalions (3x4) 155mm towed batteries. The SBCT is an expeditionary combined arms force organized around mounted Infantry. SBCT units operate effectively in most terrain and weather conditions. The role of the SBCT is to close with the enemy trough fire and movement to destroy or capture enemy forces, or to repel enemy attacks by fire, close combat, and counterattack. The goal is to control land areas, including populations and resources. See FM 3-96 for more information on SBCT.

8-15. The battalion has a HHB to provide C2 and administrative support. A FSC from a BSB provides logistical support. Figure 8-8 on page 118 shows the breakdown of a Stryker 155mm towed cannon battalion. The HHB for the 155mm towed cannon battalion is shown in figure 8-9 on page 118.

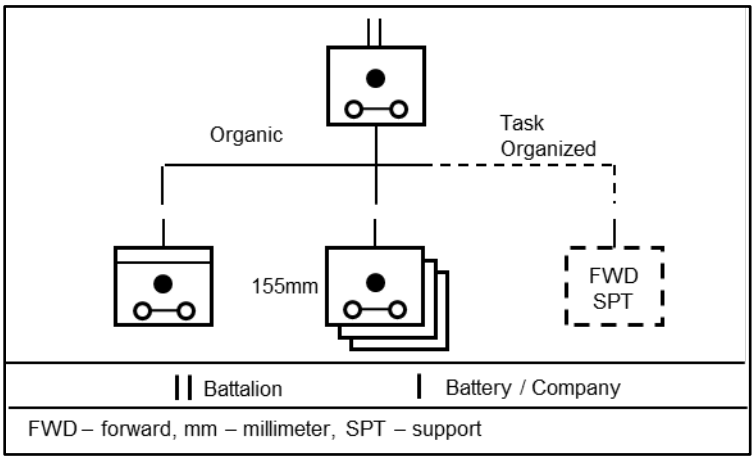


Figure 8-8. 155mm towed cannon battalion

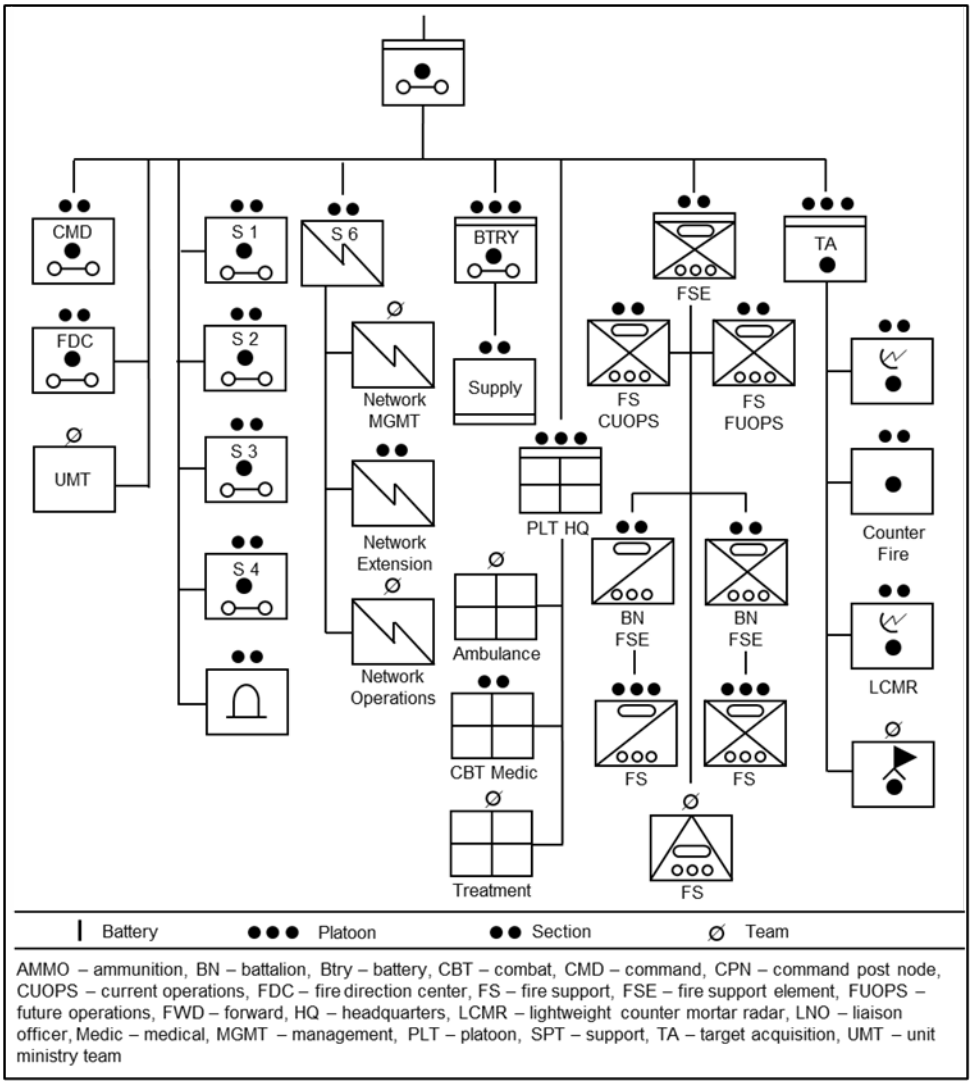


Figure 8-9. 155mm towed cannon battalion headquarters and headquarters battery

SECTION III – ARMORED BRIGADE COMBAT TEAM (155MM SELF-PROPELLED) CANNON BATTALION

8-16. Both regular Army and ARNG 155mm SP howitzer battalions provide support to armored brigade combat teams. The battalions are organized with three batteries of six SP 155mm howitzers (3x6). The ARNG also have echelons above brigade FA battalions (3x6) batteries.

8-17. The battalion has a HHB to provide C2 and administrative support. A FSC from a BSB provides logistical support. See Figure 8-10 for an example of a 155mm SP cannon battalion, and figure 8-11 on page 120 for an example of the HHB.

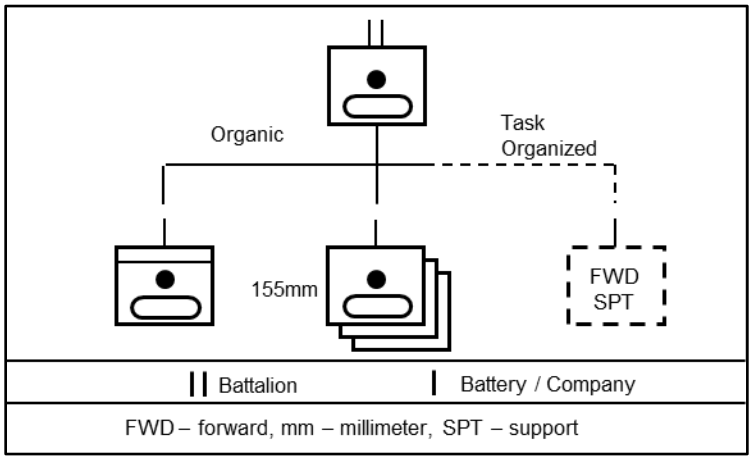


Figure 8-10. 155mm self-propelled cannon battalion

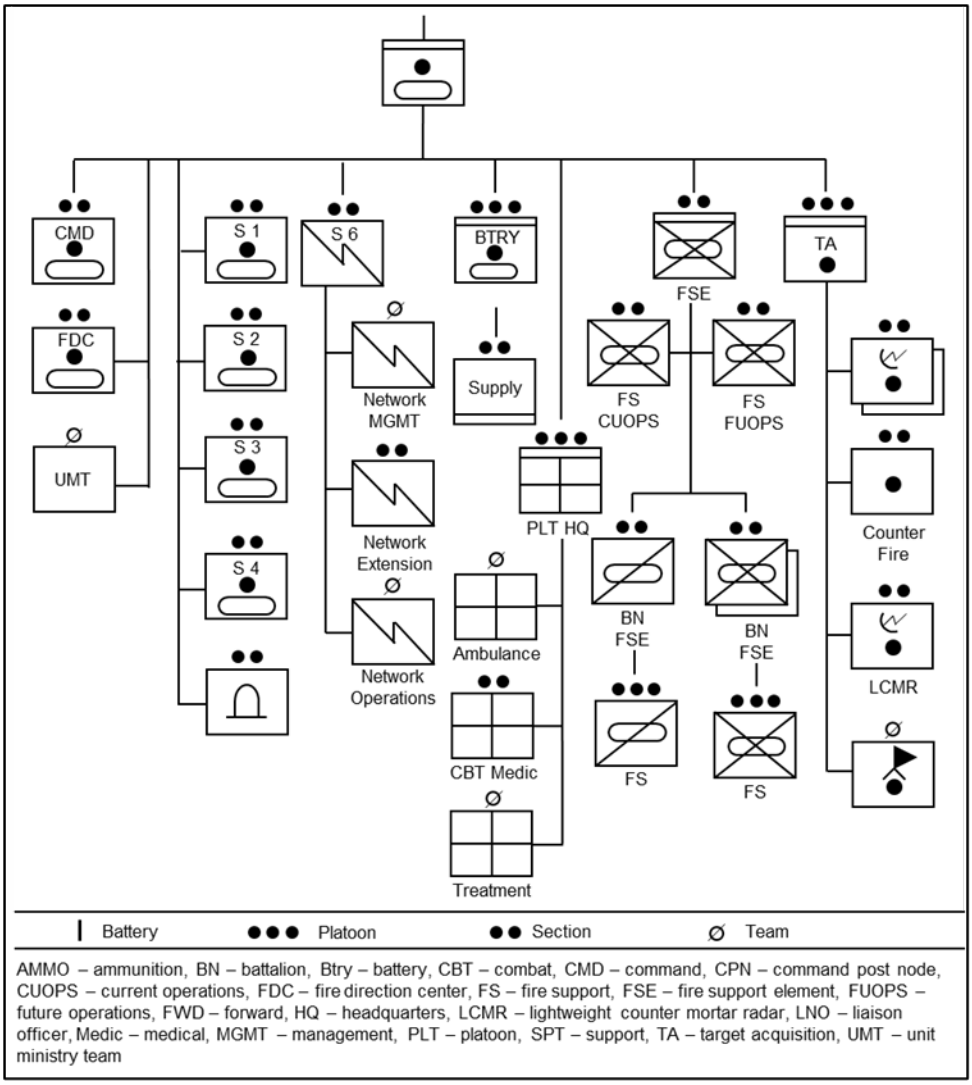


Figure 8-11. 155mm self-propelled cannon battalion headquarters and headquarters battery

SECTION IV – HIGH MOBILITY ARTILLERY ROCKET SYSTEM AND MULTIPLE LAUNCH ROCKET SYSTEM BATTALIONS

8-18. HIMARS and MLRS battalions in FABs provide long-range fires in support of the division, corps, joint task force, or other higher HQ decisive and shaping operations and for conducting counter fire. Rocket battalions are task organized against these specific mission requirements, often down to the battery or even platoon level.

8-19. Rocket battalions can also provide supporting fires to subordinate elements (divisions or BCTs) as required in either a GS or GSR role but are rarely used to directly reinforce FA battalions in BCTs for operations other than wide area security. If used in a GSR or R role, restrictive ammunition CSRs are typically used to manage their employment.

HIGH MOBILITY ARTILLERY ROCKET SYSTEM BATTALION

8-20. The mission of the HIMARS FA battalion is to provide timely, accurate rocket and missile fires in support of large-scale combat operations. The HIMARS is an air transportable, wheeled, indirect fire, rocket/missile system that can fire all rockets and missiles of the MLRS/HIMARS Family of Munitions.

8-21. The units are organized and equipped to provide FA rocket and missile fires for the supported commander and to reinforce the fires of other FA battalions. The battalions are assigned or attached to FABs and DIVARTYs. The regular Army HIMARS battalions (see figure 8-12) are composed of a HHB, and three firing batteries (3x9) each. The ARNG HIMARS battalions (see figure 8-13) are configured with an HHB, and two firing batteries (2x8). See figure 8-14 on page 122 for an example of the HHB. A FSC from the BSB provides logistical support.

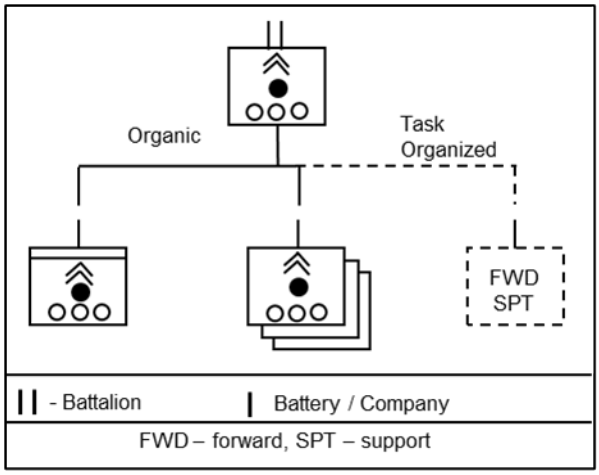


Figure 8-12. High mobility artillery rocket system (3x9)

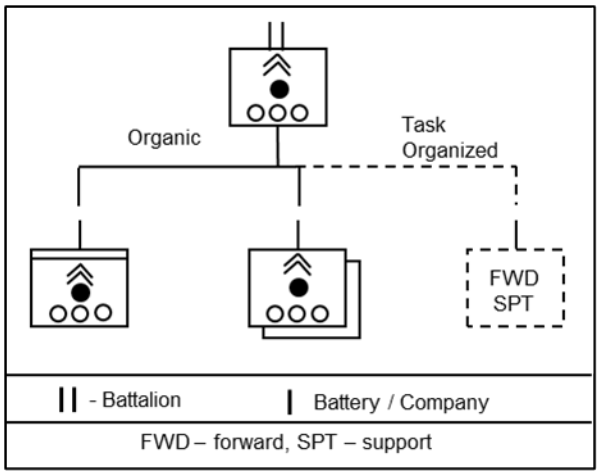


Figure 8-13. National Guard HIMARS battalion (2x8)

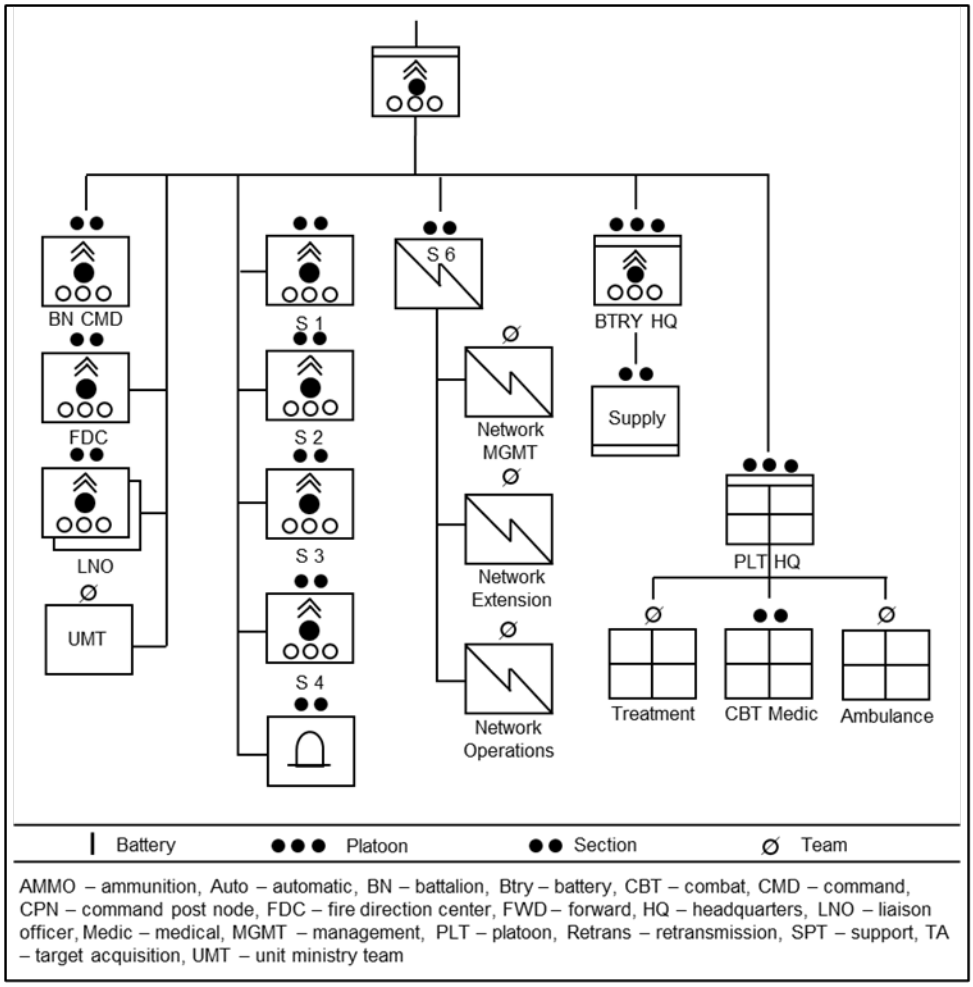


Figure 8-14. High mobility artillery rocket system headquarters and headquarters battery

MULTIPLE LAUNCH ROCKET SYSTEM BATTALION

8-22. The M270 series MLRS is a highly mobile, lightly armored, tracked carrier vehicle with a launcher module mounted on the vehicle bed. It fires surface-to-surface rockets from the MLRS/HIMARS Family of Munitions. The regular Army and ARNG MLRS battalion consist of an HHB, and three firing batteries (3x9) each. For an example of an MLRS FA battalion see figure 8-15 on page 123 and an example of an HHB see figure 8-16 on page 123. A FSC from the BSB provides logistical support.

8-23. The units are organized and equipped to provide FA rocket and missile fires for the supported commander and to reinforce the fires of other FA battalions. The battalions are assigned or attached to the FAB or DIVARTY. Additional units may be attached or assigned to a FAB or DIVARTY. The battalion is composed of a HHB, and three firing batteries with nine launchers each.

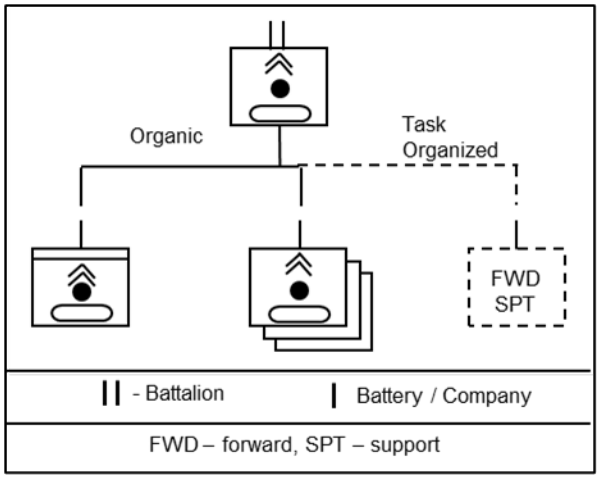


Figure 8-15. Multiple launch rocket system battalion

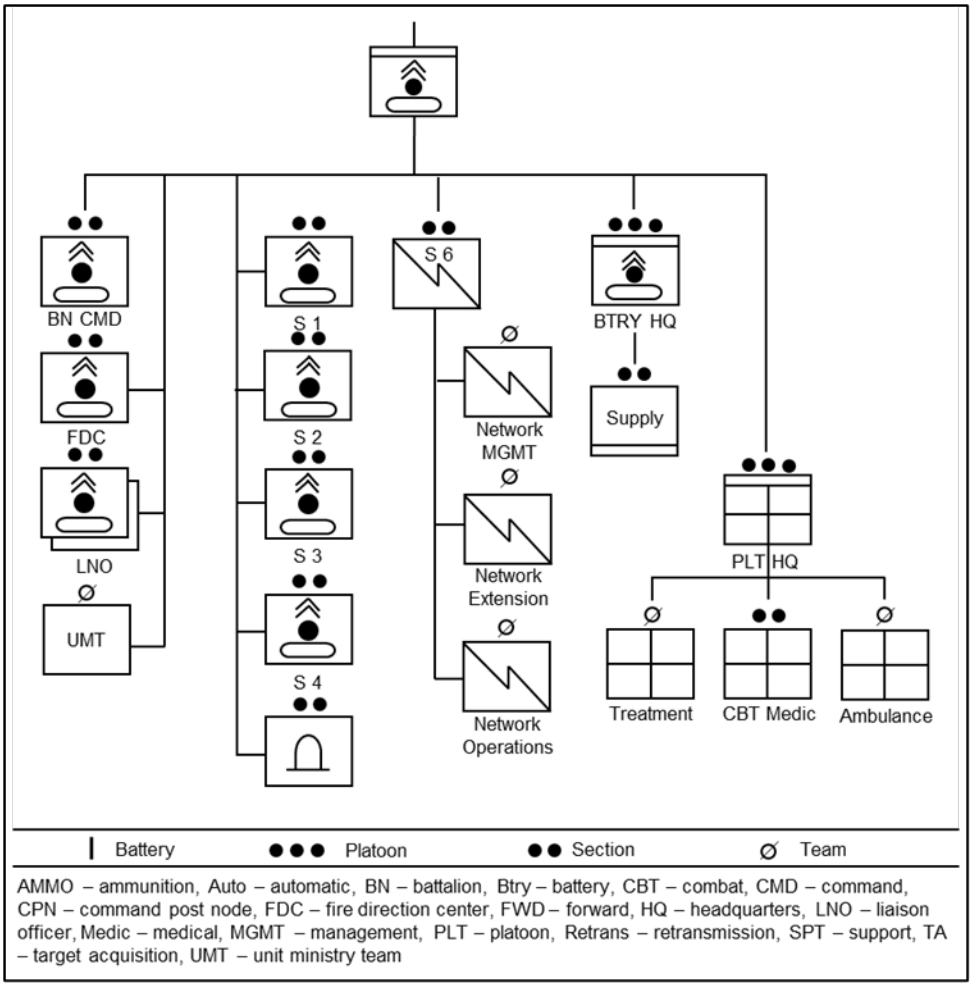


Figure 8-16. Multiple launch rocket system headquarters and headquarters battery

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Appendix A

Field Artillery Battalion Mission Products

This appendix discusses the FA battalion mission products. There are necessary inputs required to develop a FA battalion OPORD such as the higher HQ scheme of fires contained within their base OPORD and the Annex D (Fires). Depending on the tactical situation, supporting FA battalion usually conduct parallel planning with their higher HQ. Additionally, the FA battalion may utilize the FASP in lieu of a battalion OPORD. The following paragraphs provide an overview of the scheme of fires, Annex D (Fires), FA Battalion OPORD, and the FASP.

SCHEME OF FIRES

A-1. The scheme of fires describes how the commander intends to use fires to support the concept of operations. It states the priorities for, allocation of, and restrictions on fires. The FSCOORD, FSO, targeting officer, and FSE develops the scheme of fires as part of the brigade's operations planning process. The scheme of fires is utilized by the FA battalion staff to develop the FA battalion OPORD. See ATP 3-09.42 for an example of a scheme of fires paragraph.

ANNEX D (FIRES)

A-2. This annex provides fundamental considerations, format, and instructions for developing Annex D (Fires) to the base plan or order. This annex follows the five-paragraph attachment format. Commanders and staffs use Annex D (Fires) to describe how fires support the concept of operations described in the base plan or order. The FSCOORD, FSO, targeting officer, and FSE develops Annex D (Fires).

A-3. This annex describes the fires concept of support objectives. A complex fires concept of support may require a schematic to show the fires objectives and task relationships. It includes a discussion of the overall fires concept of support with the specific details in element subparagraphs and attachments. It refers to the execution matrix to clarify timing relationships among various fires tasks. This annex also contains the information needed to synchronize timing relationships of each element related to fires. It includes fires related constraints, if appropriate. See ATP 3-09.42 for an example of a brigade annex D.

FIELD ARTILLERY BATTALION OPERATION ORDER

A-4. An OPORD is a directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation (JP 5-0). The purpose of the written FA battalion OPORD is to inform FA battalion subordinate and supporting units of tasks and requirements for a specific operation and to synchronize their involvement. The FA battalion OPORD is the FA battalion commander's tactical plan for employing fires. The FA battalion OPORD is an integral supporting document to the supported higher HQ OPORD and Annex D (Fires).

A-5. The FA battalion OPORD explains the FA battalion command and support relationships and provides the FA battalion commander's guidance, intent, and concept of operations. It assigns responsibilities to subordinate and supporting elements, focusing on FA battalion actions necessary to execute FA tasks. The FA battalion OPORD must address the FA battalion commander's guidance, changes to fire order standards involving how and when to attack targets, and assignment of unit responsibilities for specific HPTs and other key targets or missions. The OPORD also addresses movement and positioning plans, C2 arrangements (for example, data links), target acquisition tasks, sustainment information, and protection measures.

A-6. Appropriate annexes and appendices should be prepared for portions of the OPORD that are better explained in a different format (for example, overlay or matrix), that are too extensive to be in the OPORD, that are expected to change or lengthen, or that are submitted too late to be included in the OPORD. For more information on OPORD format see FM 5-0.

FIELD ARTILLERY SUPPORT PLAN

A-7. This section is an example of the FASP. The section also highlights additional appendices that support the FASP. A majority of the FASP is in Appendix 4 to Annex D to the OPORD. This appendix is not intended to be all inclusive regarding the information required by an individual unit SOP. These outlines are recommended for use by all FA battalions to standardize information within the FA community.

A-8. The FASP is the FA battalion commander's tactical plan for employing the fires of all FA assets under their span of responsibility. For a DS battalion this means the FASP must address all FA supporting the supported force. It also means that the battalion must develop the FASP as an integral supporting document to the maneuver plan, usually as an appendix to the fires annex of the maneuver OPORD. R, GSR, and GS battalions usually prepare a stand-alone FASP focused on the battalion's assets and mission execution.

A-9. The FASP explains the EFATs, and provides the FA battalion commander's guidance, intent, and concept of FA operations. The FASP assigns responsibilities to subordinate and supporting elements, focusing on all tasks necessary to execute all EFATs in support of EFSTs. The FASP must address maneuver/FA commander guidance, changes to fire order standards involving how and when to attack targets, and assignment of unit responsibilities for specific HPTs and other key targets or missions. The FASP also addresses movement/positioning plans, C2 arrangements (such as sensor-to-shooter links), target acquisition tasks, support information, and force protection measures.

A-10. The battalion's FASP generally does not duplicate information from the maneuver OPORD/FS plan or a DS/higher FA HQ FASP, or from the battalion's SOPs. However, it may be necessary to repeat critical information in the battalion's FASP if the higher-level FS plan/FASP or the battalion's SOP are not disseminated to all the battalion's subordinate/supporting elements.

FIELD ARTILLERY SUPPORT PLAN FORMAT

A-11. The following pages provide an outline of the format for a FASP. The outline is annotated for specific information requirements or suggestions. This format is available in automated C2 systems.

A-12. Reference: List any maps, charts, or other documents (SOP) required to understand the order. Reference to a map will include the map series number (and country or geographic area, if required), sheet number (and name if required), edition, scale (if required), and the force common datum (see note below) from a GPS (specify type of GPS and datum used) or from the center of the lower margin on a map. Reference listed here should not be reprinted in tabs unless tabs are separated from the basic document.

> ***Note***. Universal transverse Mercator coordinates from the same point computed on a different datum may differ as much as 900 meters.

A-13. Time Zone Used Throughout Order: The time zone applicable to the operation. Times in other zones are converted to this zone for this operation. Consistency must be maintained through all documents.

A-14. Paragraph 1. Situation: Paragraph 1 is used exclusively to provide information. It includes items of information affecting FA operations that may or may not be included in the fires paragraph of the maneuver OPORD/OPLAN or the FS annex. It gives an overview of the general situation so subordinate commanders can understand the environment in which they will be operating. If all organic, attached, or supporting commanders do not receive complete copies of the maneuver OPLAN/OPORD and the FS annex, then the FASP repeats those items critical to the execution of their missions.

A-15. Sub-paragraph 1a. Enemy Forces: Subparagraph 1a provides enemy information vital to the FA unit. This includes enemy indirect fire capabilities that may influence FS activities, the ground threat, the air threat, counterfire threat, and any other enemy information of relevance to FA units. Reference may be made to an intelligence annex, an overlay, a periodic intelligence report, or to an intelligence summary. Consider using the intelligence annex as a tab.

A-16. Sub-paragraph 1b. Friendly Forces: Subparagraph 1b contains the mission and commander's intent of higher HQ (two levels up). The missions of adjacent, supporting, and R units also may be outlined here. Information should be limited to that which subordinate commanders need to know to accomplish their missions.

The supported maneuver commander's intent for FS as well as the force FA commander's intent during GS and GSR missions are included.

A-17. Sub-paragraph 1c. Attachments and Detachments: Sub-paragraph 1c should list units attached to and detached from the FA unit (if not included clearly in the task organization), the terms of attachment, and effective DTGs, if appropriate.

A-18. Sub-paragraph 1d. Assumptions: If the FASP supports an OPLAN, assumptions may be required. If the FASP is part of an OPORD, assumptions are not included.

A-19. Paragraph 2. Mission: Paragraph 2 is a clear, concise statement of the task the FA unit is to accomplish. As a minimum, it should answer the questions, who, what, when, where, and why. It includes essential tasks, EFATs/EFSTs, determined by the commander as a result of their mission analysis.

A-20. Paragraph 3. Execution: Paragraph 3 contains the how-to information needed for mission accomplishment. The FA battalion commander's intent is expressed here. The intent should briefly address the purpose of the FA fires, the methods used by the force to reach the end state to include EFSTs/EFATS that must be accomplished, guidance on movements, methods of survivability, and the end state that addresses criteria for success.

A-21. Sub-paragraph 3a. Concept of Operations: Subparagraph 3a is a detailed statement of the FA commander's visualization of the conduct of FA support for the operation by phase to the desired end state. The concept clarifies the purpose of the operation (by phase), then how FA will support it. It is a detailed explanation of the commander's intent. It is stated in enough detail to ensure appropriate action by subordinate units in the absence of more specific instructions. This paragraph may include a summary of the maneuver concept by phase for units that do not receive the maneuver OPORD.

A-22. Sub-paragraph 3b. Organization for Combat: Subparagraph 3b is a clear statement of the organization and support relationship or tactical missions of the subordinate units of the FA HQ. Organization for combat normally will be done by various phases corresponding to the operation (if changes occur). Anticipated on-order changes to organization, support relationships, or tactical missions are included in this subparagraph.

> ***Note.*** Subsequent subparagraphs in paragraph 3 build on the concept of the operation and should provide the artillery organization for combat, priority of fires, priority of special munitions, positioning and movement instructions, and EFATs to be accomplished by subordinate units. This should address each step of the operation.

A-23. Sub-paragraph 3c. Coordinating Instructions: The last subparagraph in paragraph 3 is coordinating instructions. It includes instructions and details of coordination applicable to two or more subordinate FA units. Instructions included in the subparagraph also may be addressed in tabs to the FASP. If a separate tab is developed, include in the coordinating instructions subparagraph only items of general interest, with details placed in the tab. If a tab is prepared, reference it in the body of the FASP. This subparagraph should include instructions concerning the following:

- Target acquisition to include counterfire, counterfire priorities, target acquisition asset positioning, and instructions to or about specific observers.
- Survey includes priorities for survey, accuracies required, timing, position requirements.
- Automated/manual fire control/fire direction instructions, especially coordination requirements with units with similar, but not identical, automated systems.
- CBRN defense (includes MOPP, operation exposure guidance, and decontamination instructions/locations).
- Meteorology (includes source, type, and times of meteorology messages).
- Liaison requirements.
- Ammunition restrictions (includes expenditure restrictions, approval requirements, and risk limitations).
  - Anti fratricide measures (such as vehicle markings) that are not SOP.
  - Rehearsals.

A-24. Paragraph 4. Sustainment: Paragraph 4 includes specific service support instructions and arrangements supporting the operation. The commander's guidance regarding sustainment will be here. Supply, maintenance, medical, and personnel information are included in this paragraph. As a minimum, the CSR and the sustainment locations (combat trains, field trains, casualty collection points, LRP, ammunition transfer and holding point and/or ammunition supply point) should be given. Address only those sustainment aspects that apply to the operation. Address the pertinent aspects of the six tactical logistic functions of manning, arming, fueling, fixing, moving and sustaining soldiers and their systems. These functions should be addressed before, during, and after the operation and includes:

- Sub-paragraph 4a. Manning: Current personnel strength (percentage), project replacements.
- Sub-paragraph 4b. Arming: Ammunition resupply, CSR, ammunition transfer and holding point, ammunition supply point.
- Sub-paragraph 4c. Fueling: Fuel points, priority of refuel.
- Sub-paragraph 4d. Fixing: Unit maintenance control point location, allocation of recovery assets, maintenance and recovery priorities, cannibalization authority.
- Sub-paragraph 4e. Moving: Locations of main supply route, start point, release point and checkpoints along the route, priorities of movement on main supply routes.
- Sub-paragraph 4f. Sustaining: Medical resupply, barrier materials, restricted issue or controlled exchange items, mortuary affairs, Chaplain information, water points, locations of BAS, casualty collection point, CBRN casualty collection points, civil-military cooperation.

A-25. Paragraph 5. Command and Signal includes:

- Sub-paragraph 5a. Command: The first paragraph should list the locations of the unit CP and the locations of higher, supporting, and supported unit CPs. The commander's planned location during the operation, and alternate CP can be in this paragraph. Plans should also address any alternate battalion FDC arrangements not covered in, or that are changed from, unit SOP. Other automated C2 systems used or interface requirements, and any aspects for their use also are included here. Address succession of command if other than SOP.
- Sub-paragraph 5b. Signal: This sub-paragraph contains the index of the effective signal operating instructions to include edition in effect and courier schedule. Special instructions on the use of communications equipment, retransmission elements (location and priority) and signals not covered in SOP are included here.

A-26. Approval: The original/file copy bears the signature of the FA battalion commander. The S-3 authenticates all other copies, which are disseminated to subordinate and R/reinforced FA units, any attached or supporting elements, and force FA HQ.

FIELD ARTILLERY SUPPORT PLAN TABS

A-27. Tabs should be prepared for portions of the FASP that are explained better in a different format (for example, overlay or matrix), that are too extensive to be in the FASP, that are expected to change or lengthen, or that are submitted too late to be included. Often subordinate units will not receive the basic maneuver OPLAN/OPORD or FS annex. Reprints of portions of these documents may be required and included as tabs.

A-28. Tabs are ordered as they are referenced in the basic OPLAN or OPORD. The SOP may specify that some tabs will always be produced. Common tabs used at battalion level include:

- FASM.
- FA positioning and movement overlay.
- Survey.
- Target acquisition.
- Automated digital fires system.

FIELD ARTILLERY SUPPORT MATRIX TAB TO THE FASP

A-29. The FASM is a concise planning and execution tool that graphically depicts the FA unit's essential tasks. Like paragraph 3 of the written FASP, the matrix should answer the questions who, what, when, and where. It identifies key tasks for each element and ties accomplishment of those tasks to the requirements of the maneuver plan and the FS plan.

FIELD ARTILLERY POSITIONING AND MOVEMENT OVERLAY

A-30. The FA positioning and movement overlay depicts the PAA (typically by phase of the operation), firing unit locations, ranges, phase lines, and unit boundaries.

SURVEY TAB TO THE FASP

A-31. The survey plan (or order) normally is incorporated into the FASP as the survey tab. The survey plan contains detailed instructions not covered by local TSOP for each survey team. It gives general information needed for the efficient accomplishment of the survey mission. The survey plan is normally written, but may be issued orally, if necessary. It generally follows the same format as the OPLAN/OPORD. Often because of the tactical situation and wide dispersal of units, part of the survey plan may be issued by radio or other communication means. The format for a survey plan is in ATP 3-09.02.

TARGET ACQUISITION TAB TO THE FIELD ARTILLERY SUPPORT PLAN

A-32. The target acquisition tab is a managerial tool used by the CP controlling FA target acquisition assets. This tab is used to ensure that all target acquisition assets are employed to support the overall maneuver operation. The purpose of the target acquisition tab is as follows:

- Assigns missions to FA target acquisition assets.
- Coordinates the FA target acquisition efforts.
- Establishes a specific flow of target processing data.
- Assigns responsibilities not covered in unit SOPs.

A-33. The FA battalion targeting officer supported by the S-2 and S-3 produce the target acquisition tab. For specific information on the radar deployment order see ATP 3-09.12.

AUTOMATION TAB TO THE FIELD ARTILLERY SUPPORT PLAN

A-34. The written portion of the automation tab attached to the FASP should contain changes/additions to subscriber information, and commander's criteria, geometry, units, and ammunition information that pertain to the operation (not contained in SOP).

A-35. Since automation systems provide fire planners throughout the artillery system with instantaneous access to target files and FA schedules, the S-3 no longer must attach a fire plan tab (target list and schedules of fires) to the written portion of the plan. Instead, he can initiate, coordinate, and monitor the development of the FA schedules in accordance with the standard fire planning capabilities and procedures that apply to these systems. In the written portion of the plan, he can reference FA schedules, target lists, and FSCM by plan name and, if necessary, targets by target number. FA elements can extract detailed information as needed.

A-36. For an example of a FASP See figure A-1 on pages 130-133. For an example of a field artillery execution matrix see figure A-2 on pages 134 -135. For an example of a field artillery positioning and movement overlay see figure A-3 on page 135.

[CLASSIFICATION]

Copy___of___copies
Issuing Headquarters
Place of issue
Date-time group of signature
Message reference number

APPENDIX 4 (FIELD ARTILLERY SUPPORT PLAN) TO ANNEX D (FIRES) TO OPORD [number]—[issuing headquarters] [(classification of title)]

(U) References: List documents essential to understanding the attachment.

(a) *List maps and charts first. Map entries include series number, country, sheet names or numbers, edition, and scale.*
(b) List other references in subparagraphs labeled as shown.

(c) Doctrinal references for this annex include ADP 3-19, FM 3-60, FM 3-09, FM 5-0, FM 6-0 and ATP 3-09.23.

(U) Time Zone Used throughout the OPLAN: *Write the time zone established in the base plan or order.*

(U) Task Organization: *Describe the organization of forces (including attachments and detachments to and from the issuing headquarters) and their command and support relationships. State when each attachment or detachment is effective (for example, on order, on commitment of the reserve). Refer to Annex A (Task Organization) if long or complicated.*

1.(U) Situation. *Paragraph 1 is used exclusively to provide information. It includes items of information affecting FA operations that may or may not be included in the fires paragraph of the maneuver operation order (OPORD)/operation plan (OPLAN) or the fire support annex. It gives an overview of the general situation so subordinate commanders can understand the environment in which they will be operating. If all organic, attached, or supporting commanders do not receive complete copies of the maneuver OPORD/OPLAN and the fire support annex, then the FASP repeats those items critical to the execution of their missions.*

a.(U) Area of Interest. *Include information affecting fires that paragraph 1 of the operation plan or operation order does not cover or that needs expansion.*
b.(U) Area of Operations. *Refer to Annex C (Operations) as required.*
(1) (U) Terrain. *Describe the aspects of terrain that impact fires. Refer to Annex B (Intelligence) as required.*
(2) (U) Weather. *Describe the aspects of weather that impact fires. Refer to Annex B (Intelligence) as required.*
c.(U) Enemy Forces. *Subparagraph 1c provides enemy information vital to the FA unit. This includes enemy indirect fire capabilities that may influence FS activities, the ground threat, the air threat, counterfire threat, and any other enemy information of particular relevance to FA units. Reference may be made to an intelligence annex, an overlay, a periodic intelligence report, or to an intelligence summary (INTSUM). Refer to Annex B (Intelligence) as required.*
d.(U) Friendly Forces. *Subparagraph 1d contains the missions and commander's intent of higher headquarters (HQ) (two levels up) and/or that of supported maneuver elements. Missions of adjacent, supporting, and reinforcing units also may be outlined here. Information should be limited to that which subordinate commanders need to know to accomplish their missions. The supported maneuver commander's intent for fire support as well as the force FA commander's intent during general support and general support – reinforcing missions are included.*
(1) (U) Higher Headquarters Two Levels Up. *Identify the higher headquarters mission and commander's intent two echelons above.*
(2) (U) Higher Headquarters One Level Up. *Identify the higher headquarters mission, commander's intent, and concept of operations one echelon above.*
(3) (U) Missions of Adjacent Units. *Identify and state the missions of adjacent units and other units whose actions have a significant impact on the issuing headquarters.*

[1]
[CLASSIFICATION]

Figure A-1. Appendix 4 to Annex D outline

[CLASSIFICATION]
APPENDIX 4 (FIELD ARTILLERY SUPPORT PLAN [FASP]) TO ANNEX D (FIRES) TO OPORD [number] ([code name])

e.(U) Interagency, Intergovernmental, and Nongovernmental Organizations. *Identify and describe other organizations in the area of operations that may impact the conduct of fires or implementation of fires-specific equipment and tactics. Refer to Annex V (Interagency Coordination) as required.*

f.(U) Civil Considerations. Describe the aspects of the civil situation that impact fires. Refer to Annex B (Intelligence) and Annex K (Civil Affairs Operations) as required.

g. (U) Attachments and Detachments. *Subparagraph 1g should list units attached to and detached from the FA unit (if not included clearly in the task organization), the terms of attachment, and effective DTGs, if appropriate.*

h.(U) Assumptions. *If the FASP supports an OPLAN, assumptions may be required. If the FASP is part of an OPORD, assumptions are not included.*

2.(U) Mission. *Paragraph 2 is a clear, concise statement of the task the FA unit is to accomplish. As a minimum, it should answer the questions, who, what, when, where, and why. It includes essential tasks, essential field artillery tasks (EFATs)/essential fire support tasks (EFSTs), determined by the commander as a result of his mission analysis.*

3.(U) Execution. *Paragraph 3 contains the how-to information needed for mission accomplishment. The FA battalion commander's intent is expressed here. The intent should briefly address the purpose of the FA fires, the methods used by the force to reach the end state (e.g., EFSTs/EFATS that must be accomplished, guidance on movements, methods of survivability), and the end state (address criteria for success).*

a. (U) Commanders Intent. *Refer to Base Order*

b. (U) Scheme of Fires. *Refer to Annex D (Fires)*

c. (U) Concept of Operations. *Subparagraph 3c is a detailed statement of the FA commander's visualization of the conduct of FA support for the operation by phase to the desired end state. The concept clarifies the purpose of the operation (by phase), then how FA will support it. It is a detailed explanation of the commander's intent. It is stated in enough detail to ensure appropriate action by subordinate units in the absence of more specific instructions. This paragraph may include a summary of the maneuver concept by phase for units that do not receive the maneuver OPORD.*

d. (U) Organization for Combat *Subparagraph c1 is a clear statement of the organization and tactical missions of the subordinate units of the FA HQ. Organization for combat normally will be done by various phases corresponding to the operation (if changes occur). Anticipated on order changes to organization or tactical missions are included in this subparagraph.*

(1) (U) Priority of Fires. *List the commander's guidance to employ fires in accordance with the relative importance of unit's mission.*

(2) (U) Essential Field Artillery Tasks. *List of tasks that must be accomplished in each phase to achieve a fire support task. A fully developed field artillery task has a task, purpose, method and effects.*

(3) (U) Positioning Guidance. *Provide positioning guidance to field artillery assets required for execution.(Firing units, target acquisition.*

(4) (U) Fire Support Coordination Measures. *List all applicable fire support coordination measures.*

(5) (U) Airspace Coordinating Measures. *List all applicable airspace coordinating measures.*

(6) (U) Ammunition Restrictions. *Includes expenditure restrictions, approval requirements, and risk limitations.*

e. (U) Tasks to Subordinate Units. *State the tasks assigned to each unit that reports directly to the headquarters issuing the order. Each task must include who (the subordinate unit assigned the task), what (the task itself), when, where, and why (purpose). Use a separate subparagraph for each unit. List units in task organization sequence. Place tasks that affect two or more units in paragraph 3f (Coordinating Instructions).*

f. (U) Coordinating Instructions. *The last subparagraph in paragraph 3 is coordinating instructions. It includes instructions and details of coordination applicable to two or more subordinate FA units. Instructions included in the subparagraph also may be addressed in tabs to the FASP. If a separate tab is developed, include in the coordinating instructions subparagraph only items of general interest, with details placed in the tab. If a tab is prepared, reference it in the body of the FASP. This subparagraph should include instructions concerning the following:*

(1) (U) Target Acquisition. *Includes counterfire reference grid and instructions to or about specific observers.*

(2) (U) Survey. *Includes priorities for survey, accuracy required [if other than SOP], timing, position requirements, future plans, spheroid, datum, ellipsoid, codes, datum codes used, time zone letter, and grid zone.*

(3) (U) Meteorological Data. *Includes source, type, and times of messages.*

(4) (U) Chemical, Biological, Radiological, and Nuclear Environment Defense. *Includes mission oriented protective posture, operation exposure guidance, and decontamination instructions/locations.*

(5) (U) High-Payoff Target List. *See Appendix 3 (Targeting) to Annex D (Fires).*

(6) (U) Attack Guidance Matrix. *See Tab C to Appendix 3 (Targeting) to Annex D (Fires).*

(7) (U) Target List Worksheet. *See Tab D to Appendix 3 (Targeting) to Annex D (Fires).*

[2]
[CLASSIFICATION]

Figure A-1. Appendix 4 to Annex D outline. (continued)

[CLASSIFICATION]
APPENDIX 4 (FIELD ARTILLERY SUPPORT PLAN [FASP]) TO ANNEX D (FIRES) TO OPORD [number] ([code name])

(8) (U) Miscellaneous. *Provide any other information necessary for planning not already mentioned, include the following:*
(a) *Liaison requirements.*
(b) *Intelligence acquisition tasks.*
(c) *Rules of engagement specific to fires.*
(d) *Automated/manual fire control/direction instructions.*
(9) (U) *Commanders Critical Information Requirements: Includes priority intelligence requirement, essential elements of friendly information, friendly force information requirement and other intelligence datum/information as appropriate.*
(Further details and products on Execution may be amplified in a tab.)

4. (U) Sustainment. *Paragraph 4 includes specific service support instructions and arrangements supporting the operation. The commander's guidance regarding combat service support (CSS) will be here. Supply, maintenance, medical, and personnel information are included in this paragraph. As a minimum, the controlled supply rate (CSR) and the CSS locations (combat trains, field trains, casualty collection points, logistics resupply point [LRP], ammunition transfer point [ATP], and/or ammunition supply point [ASP]) should be given. Address only those CSS aspects that apply to the operation. Address the pertinent aspects of logistics and personnel for moving and sustaining soldiers and their systems. These functions should be addressed in turns of before, during, and after the operation. Refer to Annex F (Sustainment) as required.*
a.(U) Logistics. *Use subparagraphs to identify priorities and specific instructions for fires logistics support. Refer to Annex F (Sustainment) and Annex P (Host-Nation Support) as required.*
(1) (U) Allocation of Ammunition. *Ammunition resupply, controlled supply rate (CSR), ammunition transfer point (ATP), ammunition supply point (ASP).*
(2) (U) Fueling. *Fuel points, priority of refuel.*
(3) (U) Maintenance. *Unit maintenance collection point location, allocation of recovery assets, maintenance and recovery priorities, cannibalization authority.*
(4) (U) Movement. *Locations of main supply route, start point, release point, and checkpoints along the route, priorities of movement on main supply routes (MSRs).*
b.(U) Personnel. *Use subparagraphs to identify priorities and specific instructions for human resources support, financial management, legal support, and religious support. Refer to Annex F (Sustainment) as required.*
(1) (U) Manning. *Current personnel strength (percentage), project replacements.*
(2) (U) Health Service Support. *Medical resupply, mortuary affairs, chaplain information, water points, locations of battalion aid station, casualty collection point, chemical casualty collection points.*
(3) (U) Financial Management. *Refer to Annex F (Sustainment) as required.*
c. (U) Miscellaneous. *Other logistical requirements. (barrier materials, restricted issue or controlled exchange items, civil-military cooperation.)*
(Further details on Sustainment may be amplified in a tab.)

5. (U) Command and Signal.

a.(U) Command. *The first paragraph should list the locations of the unit TOC and the locations of higher, supporting, and supported unit TOCs. The commander's planned location during the operation, and alternate command post can be in this paragraph. Plans should also address any alternate battalion fire direction center arrangements not covered in, or that are changed from, unit SOP. Other automated C2 systems used or interface requirements (such as maneuver control system), and any particular aspects for their use also are included here. Address succession of command if other than SOP.*
(1) (U) Location of Commander and Key Leaders. *State the location of the commander and key fires leaders.*
(2) (U) Succession of Command. *State the succession of command if not covered in the unit's SOPs.*
b. (U) Signal. *This subparagraph contains the index of the effective signal operation instruction to include edition in effect and courier schedule. Special instructions on the use of radios, wire, mission support element, retransmission elements (location and priority) and signals not covered in SOP are included here. See Annex H (Signal) as required.*

[3]
[CLASSIFICATION]

Figure A-1. Appendix 4 to Annex D outline. (continued)

[CLASSIFICATION]
APPENDIX 4 (FIELD ARTILLERY SUPPORT PLAN [FASP]) TO ANNEX D (FIRES) TO OPORD [number] ([code name])

ACKNOWLEDGE: Acknowledge receipt of the OPLAN. Acknowledgement of OPLAN means that it has been received and understood.

NAME
RANK

OFFICIAL:
[Authenticator's Name]
[Authenticator's Position]

TABS:

Note: Tabs should be prepared for portions of the FASP that are explained better in a different format (for example, overlay or matrix), that are too extensive to be in the FASP or that are expected to change or lengthen. Tabs are ordered as they are referenced in the basic OPORD or OPLAN. The SOP may specify that some tabs will always be produced. Common tabs used at battalion level include:

Tab A. Field Artillery execution matrix
Tab B. Field Artillery positioning and movement overlay
Tab C. Target acquisition
Tab D. Survey
Other Tabs as needed:
Intelligence
Sustainment overlay
Maneuver overlays
Met
Task organization
Obstacle overlay
Rules of engagement
Air defense, engineer, and other supporting element plans as appropriate

[4]
[CLASSIFICATION]

Figure A-1. Appendix 4 to Annex D outline. (continued)

[CLASSIFICATION]

TAB A (FA SUPPORT MATRIX) TO APPENDIX 4 (FIELD ARTILLERY SUPPORT PLAN [FASP]) TO ANNEX D (FIRES) TO OPORD [number] ([code name])

(U) References: List documents essential to understanding the attachment.
(a) *List maps and charts first. Map entries include series number, country, sheet names or numbers, edition, and scale.*

(U) Time Zone Used throughout the OPLAN: *Write the time zone established in the base plan or order.*

HQ	*List targets assigned by the maneuver HQ by phase (designate primary or alternate).*			
2-15 FA		AB 3000 (A), AB 3020 (P)		
POF	*List FA priority of fire assigned to a maneuver HQ by phase.*			
FA POF	1-89 CAV	2-87 IN →	→	→
List each subordinate firing unit	*List assigned targets with primary or alternate designation* *List position areas w/AOF*			
A/2-15 FA	TAA	PAA A1 (AOF 1600) → AB 3000 (P) AB 3020 (BN)	→	→
B/2-15 FA	TAA	PAA B1 (AOF 1400) o/o PAA B2 (AOF 1700) AB 3000 (A) AB 3020 (BN)	PAA B2 (AOF 1700) →	→
List each organic, attached, OPCON, TACON radar separately	*List active sensor zones* *List location w/AOS*			
1/Q-53	TAA	w/ A BTRY (AOS 2000) CFZ1 CFFZ1	Remain w/ A (AOS 2500) →	→
2/Q-53	BSA, AOS 1500	ND 123 456 (AOS 1300)	CFZ 2	
MAIN CP	*List location*	TAA (ND 123 456) →	→	ND 123 456
TAC CP	*List location*	ND 123 456 →	→	ND 123 456
FTCP	*List location*	w/BSA (ND 123 456) →	→	Move w/BSA
CTCP	*List location*	Co-locate w/MAIN CP →	→	Move W/MCP
Battalion Aid Station	*List location*	ND 123 456 →	→	ND 123 456

Figure A-2. Tab A. Field artillery execution matrix (example)

FSCMs	*List active FSCMs and ACAs*	NFA 1, NFA 2 RFA 1, RFA 2 FSCL ROMEO CFL YANKEE o/oTANGO CFZ 1, CFFZ 1	NFA 3, 4 CFL TANGO CFZ 2	→
Survivability Move Criteria	*List the SMC to be used during this phase*	6 x Fire Missions 60 min stationary Upon contact		

ACA – airspace coordination area, AOF – azimuth of fire, AOS – area of search, BSA – brigade support area, BTRY – battery, CP – command post, CFL – coordinated fire line, CFZ – critical friendly zone, CFFZ – call for fire zone, CTCP – combat trains command post, FA – field artillery FSCM – fire support coordination measure, FTCP – field trains command post, HQ – headquarters, MCP – main command post, NFA – no fire area, OPCON – operational control, PAA – position area artillery, POF – priority of fires, RFA – restricted fire area, SMC – survivability move criteria, TAA – tactical assembly area, TAC CP – tactical command post, TACON – tactical control.

Figure A-2. Tab A. Field artillery execution matrix (example continued)

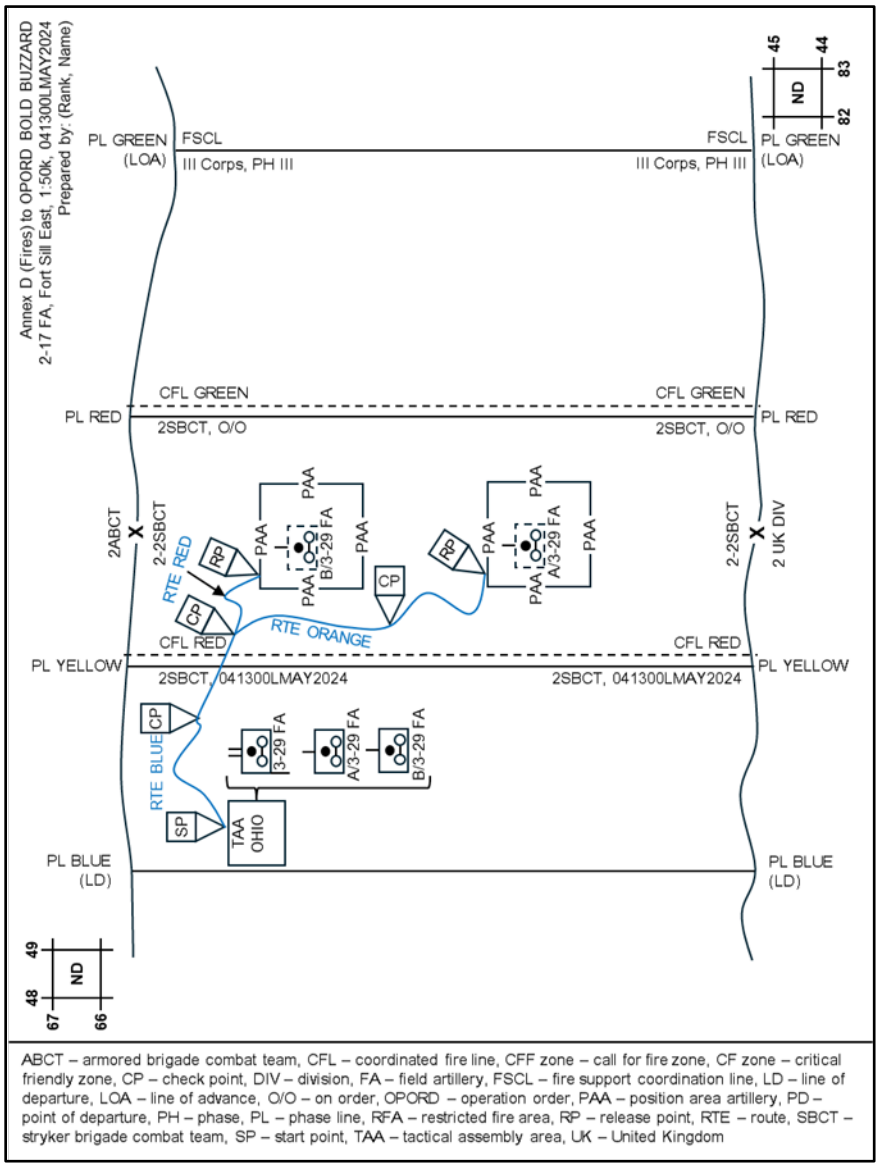


Figure A-3. Tab B. Field artillery positioning and movement overlay (example)

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Appendix B

Liaison Operations

This appendix provides an example of a liaison checklist that can be used when preparing for operations. This appendix includes a list of what the LNO should do before, during, and when departing the unit that they are providing liaison assistance.

PREPARATION FOR OPERATIONS

B-1. The LNO directs the liaison team and represents the battalion commander at the supported unit. The LNO advises the supported commander on battalion capabilities, limitations, and disposition; recommends employment options and helps coordinate fires of the battalion with other FS assets. They keep their battalion commander informed on the current situation of the supported unit and on future requirements.

B-2. LNOs are also responsible for the preparation, accountability and verification of equipment, and the training, welfare, and safety of the liaison team during operations. The following checklists can be utilized by battalion LNOs to conduct liaison duties. For more information on liaison operations see FM 3-0.

EQUIPMENT

B-3. This checklist provides an example of the equipment needed for deployment or training exercises to include:

- Personal field gear and equipment.
- Night vision goggles.
- GPS receiver.
- Camouflage screening system.
- Hex tent/stove/cots/water cans.
- Current fire control system.
- Communications Systems:
  - Radios/COMSEC devices.
  - Range enhancing antenna (2 each).
- Maps and overlay material.
- Field table with chairs.
- Office supplies and materials to include:
  - Pens/pencils/markers.
  - Notepads and tablet.
  - Rubbing alcohol/paper towels.
  - DA Form 1594 (*Daily Staff Journal or Duty Officer's Log*).
  - Fire mission logs.

INFORMATION

B-4. This Checklist provides an example of the needed resources for secure communications, intelligence, and information to include:

- SOP/SOI/OPLAN/OPORD of sending unit.
- SOP/SOI/OPLAN/OPORD of receiving unit.
- Location and route to receiving CP.
- Intelligence updates.
- Current plans, orders, maps, overlays, and targeting information to include concept of operation, concept of fires, and commander's intent.
- Unit locations/readiness and strength.
- Land management coordinating agency (force HQ FSE/fires element).
- Logistical considerations and supporting agencies.
- Current status of receiving unit's mission.

DEPARTURE CHECKLIST

B-5. This checklist is utilized by the LNO before departing the parent unit to include:

- Checklist for commanders' intent.
- Do you understand what the commander wants the receiving commander to know?
- Did you arrange for a briefing from operations, intelligence, and other staff elements concerning current and future operations?
- Did you verify the receipt of, and do you understand, the tasks your staff has given you?
- Did you obtain the correct maps, traces, and overlays (including maneuver, engineer, and FS overlays)?
- Did you arrange for transport, communications and cryptographic equipment, codes, and signal instructions, and for their protection and security?
- Did you arrange for the departure of the liaison party?
- Did you complete the route reconnaissance and time management plans so you will arrive at the designated location on time?
- Do you and your party know how you are to destroy the information you are carrying in an emergency, in transit, and at the receiving unit?
- Do you have an SOI? (Do you know the challenge and password?)
- Did you inform your HQ of when you will leave, what route you will take, when you are to arrive, POC for linkup with receiving unit, and when known, the estimated time and route of your return?
- Did you pick up all correspondence designated for the receiving HQ?
- Did you conduct a radio check? (Do you have appropriate COMSEC equipment?)
- Do you know the impending moves of your HQ and of the receiving HQ?
- Did you bring automation or computers to support your operation?
- Did you pack adequate supplies of Class I and III for use in transit?

LIAISON DUTIES CHECKLIST

B-6. This checklist in utilized by the LNO during liaison operations with the supported unit to include:

- Checklist notification of established operations.
- Establish and maintain communication(s) with sending unit.
- Notify your own HQ of your arrival.
- Deliver all correspondence designated for the receiving HQ.
- Visit staff elements, brief them about your unit, and collect information (such as maps, traces, and overlays) from them.
- Annotate on all overlays the security classification, title, map scale, grid intersection points, date time group information, date time group received, and from whom received.
- Participate in receiving unit's orders process, briefings, and rehearsals. Assist in development of:
  - FS execution matrix.
  - FS plan.
- Advise on parent unit capabilities, requirements, limitations, and employment.
- Visit and coordinate routinely with all receiving unit staff elements.
- Send parent unit routine updates regarding mission, unit locations, future operations, and commander's intent.
- Organize work/rest cycle for 24-hour operations.
- Ensure that receiving unit S-3 is always aware of your location.
- Facilitate information exchange.
- Gather correspondence for your HQ before departure and inform the receiving HQ of when you will depart, what route you will take, and when you expect to arrive at the parent unit.

Appendix C

Distributed Units

This appendix provides a brief overview and discussion of techniques and associated considerations unique to batteries operating as distributed units. Long-range fires employment in support of theater strategic, and operational objectives will create a need for these units to operate in a distributed capacity. Distributed units are characterized as small units operating independently over extended distances, with or without additional support. These units are distributed across a large area to create advantages over enemy forces.

OVERVIEW

C-1. Extensive dispersion reduces the unit's vulnerability to threat observation and fires but may increase its vulnerability to attack by enemy forces. Distributed units require effective leaders, decentralized positions, decentralized decision-making, and well-trained units.

C-2. There are tactical advantages, disadvantages, and risks associated with distributed units. Small units operating independently, require improved external sustainment support from higher HQ. Distributed units require increased local security, improved situational awareness, reconnaissance and surveillance support, and organic sensors that can survive under fire. Increasing the distance between units beyond mutually supporting ranges may require support to supplement organic fires. Identify considerations associated with distributed units as early as possible in the MDMP.

C-3. Small, distributed units present unique challenges and tactical considerations for the commander and key leaders. Considerations for distributed units include:

- Method of control: centralized or decentralized.
- Method of employment: section, platoons, pairs, or groups.
- Personnel strength and level of training.
- Communications equipment availability and level of training.
- Sustainment supply, maintenance, and medical operations.

PERSONNEL

C-4. Distributed units require small unit leaders that focus training on small unit doctrine, tactics, techniques, and procedures. These small unit leaders motivate, inspire, and influence their unit members to work toward a common purpose, compelling them to go beyond their individual interests and work for the common good. Distributed units require a greater reliance on teamwork, cohesion, and trust.

C-5. Units may perform maneuver tasks in addition to firing tasks, as required. The FA unit is not equipped with the equipment, resources, or personnel to conduct standard infantry missions. A traditional infantry company is considerably larger that a battery. All personnel must fully understand the mission; cultural impacts, if any; and ROE. Unit SOP must be developed, rehearsed, and coordinated to effectively deal with these complex situations.

C-6. The considerations for personnel will vary based on unit composition and method of employment. Unit modified tables of organization and equipment, task-organization, commander's guidance, personnel strength, level of training, individual capabilities, and other factors may require the commander to modify personnel assignments for task organization. The commander bases this decision on mission variables or unit SOP. The commander issues planning guidance on personnel, to include minimum safe manning levels for firing and priorities for defense of the unit. Considerations for unit personnel include:

- Personnel strength levels.
  - Unit elements (distributed).
  - Unit positions (forward operating base, combat outpost, separate continental deployment).
- Level of training on defense tactics and procedures.
- Maneuver missions for one or more platoons.

- Monitor personnel strength levels for positions where the unit may not be able to fully maintain an effective defensive perimeter and provide for continuous support from local units.

HEALTH SERVICE SUPPORT

C-7. Considerations for health service support include:

- Medical personnel attached to the unit and organization of combat medics to the platoons.
- Determining the number of trained CLS personnel and quantity of CLS bags required.
- Establish a selection criterion to identify the best-qualified battery members to attend training.
  - Identification of sustainment and requalification training.
  - Identify and nominate unit members to attend emergency medical technician training to enhance first responder care within the units.
- Pre-combat checks and inspections for availability and serviceability of the contents of CLS bags.
- Requisition Class VIII medical supplies for CLS bags and combat medic while attached.
- Identification of CASEVAC procedures including:
  - Number of litters (standard collapsible or nonstandard collapsible) for CASEVAC.
  - Identification of a platoon CASEVAC vehicle with litter securing equipment (example ratchet straps or engineer tape).

C-8. Request additional trained medical personnel to augment unit level medics to meet mission requirements. The goal should be to position a CLS and bag in every section and on every vehicle.

COMMUNICATIONS

C-9. Distributed units require more robust communications equipment and assets to operate effectively over great distances. Communications between the launcher and the battery operation center is a major concern with increased distances. Develop unit SOP to establish primary and alternate means of communications and provide for redundancy.

C-10. The unit's communication requirements will vary based on unit composition and method of employment. Unit tables of organization and equipment, task-organization, commander's guidance, personnel strength, level of training, individual capabilities, and other factors may require the unit commander to modify the communications plan. The unit's commander bases this decision on mission variables or unit SOP. The unit's commander issues planning guidance on priorities for voice and data networks, to include redundancy.

C-11. Planning considerations for communications include:

- Communications equipment availability.
  - Tactical radios.
  - Wire communications.
- Information systems availability.
- Network availability.
  - Voice networks.
  - Data networks.
  - Connectivity.
  - Bandwidth.
  - Redundancy.
  - Rehearsals.
- Training.
  - Unit training.
  - New equipment training.
- Certification.
  - Operators.
  - Unit leaders.
- Interference.
- Security measures.

C-12. Inventory tactical radios and wire communications, if available for accountability and serviceability. Inventory non-organic equipment assigned to the unit, for example, theater provided equipment. Inventory information systems, if available for accountability and serviceability. Inventory peripherals, power supplies, and stand-alone kits, if equipped. Verify systems capability to maintain situational awareness, perform threat analysis, and display imagery analysis.

C-13. Establish voice and data networks based on availability and operational status of equipment. Verify network connectivity and bandwidth. Request additional bandwidth to support mission requirements, as required. Establish backup plans for each network for redundancy. Conduct rehearsals of communications, to include degraded operation.

C-14. Determine level of training and certification of unit personnel on assigned equipment. Identify training requirements for communications equipment and information system operators. Request new equipment training or mobile training teams, if available. Develop a certification program for communications equipment or information system operators. Include unit leaders in training and certification.

C-15. Determine locations or terrain that may interfere with communications. Terrain masks may interfere or disrupt lines of communication. Verify communications for future locations, if possible. Relocate to improve communication with all elements and higher HQ.

C-16. Develop COMSEC measures to prevent disruption in connectivity. Use secure communications equipment whenever possible. Practice communications discipline by limiting transmission length and frequency of use.

C-17. Mission success depends as much on preparation as it does on planning. To make a tentative plan, the unit commander must gather information by focusing on unit level mission variables. Mission checklists could be valuable in providing sample topics and questions that may assist the commander in this effort. Mission checklists include:

- Mission planning.
- Pre-combat checklists for:
  - Ground threat (mounted and dismounted).
  - Air threat.
  - Counterfire.
  - CBRN threats and hazards.
  - MEDEVAC.
  - Artillery raid procedures.
  - Mines.
  - Massing.
  - Critical events timeline.
  - Unit defense.
  - Degraded operations.

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Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. The glossary lists terms for which ATP 3-09.23 is the proponent are marked with an asterisk (*). The proponent publication for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

1SG	first sergeant
ACM	airspace coordinating measure
ADSE	air defense support element
AFATDS	Advanced Field Artillery Tactical Data System
AGIE	air ground integration element
AO	area of operations
ARNG	Army National Guard
ATP	Army techniques publication
BAS	battalion aid station
BCT	brigade combat team
BSB	brigade support battalion
C2	command and control
CAS	close air support
CASEVAC	casualty evacuation
CBRN	chemical, biological, radiological, and nuclear
CCIR	commander's critical information requirement
CFZ	critical friendly zone
CLS	combat lifesaver
COA	course of action
COMSEC	communications security
COP	common operational picture
CP	command post
CSM	command sergeant major
CSR	controlled supply rate
DIVARTY	division artillery
DS	direct support
EFAT	essential field artillery task
EFST	essential fire support task
EOD	explosive ordnance disposal
FA	field artillery
FAB	field artillery brigade
FASM	field artillery support matrix
FASP	field artillery support plan
FDC	fire direction center
FDO	fire direction officer
FIST	fire support team

FLOT	forward line of own troops
FM	field manual
FS	fire support
FSC	forward support company
FSCM	fire support coordination measure
FSCOORD	fire support coordinator
FSE	fire support element
FSO	fire support officer
GS	general support
GSR	general support-reinforcing
HHB	headquarters and headquarters battery
HIMARS	high mobility artillery rocket system
HPT	high-payoff target
HQ	headquarters
IPOE	intelligence preparation of the operational environment
JFO	joint fires observer
JTAC	joint terminal attack controller
LNO	liaison officer
MCOO	modified combined obstacle overlay
MEDEVAC	medical evacuation
METT-TC (I)	mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations
MDMP	military decision-making process
MLRS	multiple launch rocket system
mm	millimeter
NATO	North Atlantic Treaty Organization
NCO	noncommissioned officer
OPLAN	operations plan
OPORD	operations order
PAA	position area for artillery
PGK	precision guidance kit
PIR	priority intelligence requirement
POL	petroleum, oil, and lubricants
R	reinforcing
ROE	rules of engagement
RSR	required supply rate
S-1	battalion or brigade personnel staff officer
S-2	battalion or brigade intelligence staff officer
S-3	battalion or brigade operations staff officer
S-4	battalion or brigade logistics staff officer
S-6	battalion or brigade signal staff officer
SBCT	Stryker brigade combat team
SCP	survey control point
SEAD	suppression of enemy air defenses
SGT	sergeant
SME	subject matter expert
SNE	soldier network extension
SP	self-propelled

SOI	signal operating instructions
SOP	standard operating procedure
STANAG	standard agreement
UAS	unmanned aircraft system
WLR	weapons locating radar
XO	executive officer

SECTION II – TERMS

airborne operation

An operation involving the air movement into an objective area of combat forces and their logistic support for execution of a tactical, operational, or strategic mission. (JP 3-18)

ammunition transfer holding point

A designated site operated by a brigade support battalion distribution company where ammunition is received, temporarily stored, or transferred to supported units within a functional or multifunctional brigade. Also called ATHP. (ATP 4-35)

civil reconnaissance

A targeted, planned, and coordinated observation and evaluation of specific civil aspects of the environment such as areas, structures, capabilities, organizations, people, or events. (JP 3-57)

***controlled supply rate**

The rate of ammunition consumption that can be supported, considering availability, facilities, and transportation. It is expressed in rounds per unit, individual, or vehicle per day.

direct support

A support relationship requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance. (FM 3-0)

forward observer

An individual operating with front line troops trained to adjust ground or naval gunfire and pass back battlefield information. Also called FO. (JP 3-09)

joint fires observer

A certified and qualified Service member who requests, controls, and adjusts surface-to-surface fires; provides targeting information in support of close air support; and performs terminal guidance operations. Also called JFO. (JP 3-09.3)

reinforcing

A support relationship requiring a force to support another supporting unit. (FM 3-0)

***required supply rate**

The amount of ammunition expressed in terms of rounds per weapon per day for ammunition items fired by weapons, in terms of other units of measure per day for bulk allotment, and other items estimated to be required to sustain operations of any designated force without restriction for a specified period.

support area

The portion of the commander’s area of operations that is designated to facilitate the positioning, employment, and protection of base sustainment assets required to sustain, enable, and control operations. (ADP 3-0)

survivability

A quality or capability of military forces which permits them to avoid or withstand hostile actions or environmental conditions while retaining the ability to fulfill their primary mission. (ATP 3-37.34)

survivability operations

Those protection activities that alter the physical environment by providing or improving cover, camouflage, and concealment. (ATP 3-37.34)

sustainment maintenance

Off-system component repair and/or end item repair and return to the supply system or by exception to the owning unit, performed by national level maintenance providers. (ATP 4-33)

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ATP 3-09.23

25 February 2026

By Order of the Secretary of the Army:

RANDY A. GEORGE
General, United States Army
Chief of Staff

Official:



MATTHEW L. SANNITO
Administrative Assistant
to the Secretary of the Army
2605402

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