



National Training Center Update

Defensive Operations Against a Near-Peer Threat

March 2020





30 March 2020

Fellow Leaders,

While nearly every leader prefers to maintain an offensive mindset, defensive operations serve a purpose and are listed as a Mission Essential Task for nearly every formation in our Army. While applications vary, defensive operations often allow our Army to retain decisive or key terrain, attrite or fix an enemy force, or counter an enemy action. Each rotation at the National Training Center, at some point, stresses a unit's ability to conduct a defense.

Whether woven into the rotational design by senior trainers purposefully, executed due to a unit's need to consolidate gains over extended distances, or conducted in reaction to an enemy action, at some point, every unit executes a defensive oriented task at the National Training Center.

Most often, we imagine defensive operations executed as grand Brigade level operations designed to defeat a hoard of attacking enemy forces. In reality, units most often execute smaller echelon defensive operations as they transition from an attack, conduct consolidation and reorganization activities, and prepare for follow on operations. In fact, most National Training Center rotations will see only 1-2 Brigade level defensive oriented missions over the course of 14 day rotation as compared to numerous Battalion and smaller defensive operations designed to retain key terrain, allow preparation for follow on operations, or defeat an enemy counterattack.

Additionally, as we continue to train our forces to conduct sustained combat operations over extended distances, many lower echelon forces operating in both the close area and consolidation area are consistently reminded they need to be able to protect themselves. Given the proliferation of technology among our enemies and their proxy forces, the ability of every formation to defend their position represents an essential task for our Brigade Support Battalion elements, Brigade Engineer Battalion elements, field artillery battalions, command posts, as well as combat trains. In short, our ability to defend our position at lower echelons allows us to conduct both current and follow on operations effectively.

As we always coach here at the NTC, if you're not attacking, you're defending...and you should continue to improve your position. Hopefully, this edition assists your formation in developing effective TTPs to conduct defensive operations.

As always, we want to thank you for all that you do for our Army. If we can do anything to assist you moving forward, please do not hesitate to ask.

Sincerely,

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Section I: Cavalry Defensive Operations Against a Near-Peer Threat

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Observation: Cavalry Troops frequently fail to provide early warning to the protected force while performing a screen. Units are placed on disadvantageous terrain, fail to array in depth, and neglect to incorporate available aerial reconnaissance to extend observation and maximize reaction time and maneuver space.

Best Practice: Screens must have sufficient depth to provide reaction time and maneuver space. They must be arrayed in a way that generates contact with the smallest element possible first. Squadron planners need to synchronize organic UAS with brigade and higher-level assets. Raven, Shadow, and other unmanned aerial surveillance (UAS) assets should observe named areas of interest (NAIs) forward of the ground troops.

Dismounted OPs offer the smallest ground troop signature and should be forward of vehicle positions with appropriate optics to observe assigned NAIs. Dismounts must be prepared to climb restrictive, elevated terrain in order to gain the best observation of the battlefield. Unit leadership must account for the time required to move dismounted in challenging terrain and during periods of darkness; a standard measure is no more than one kilometer per hour. Instead of choosing key terrain that is likely to have a planned artillery target against it, recommend picking the 'next best' piece of terrain to lower risk to dismounted OPs. Dismounted OPs employ optics (LLDR, LRAS, etc.) to increase their ability to acquire targets at distance, positively identify them, and rapidly generate an accurate fire mission.

Vehicles array themselves in mounted OPs behind dismounted OPs, or in hide sights nearby that will not compromise dismounted OP positions. Vehicles represent a significantly larger signature on the screen and represent a higher risk of discovery than dismounted units. Mitigate the risk of vehicle detection through employment of camouflage netting and the use of turret and hull down fighting positions when possible.

Finally, troops should coordinate with the task force scouts of the protected unit to add an additional layer of depth to ensure continuous reconnaissance and a deliberate reconnaissance hand-over leading up to engagement by the protected force. Task force scouts take up a position to maintain a security area, and allow for rapid execution of reverse passage of lines (RPOL). Annex B in ATP 3-20.97 provides multiple layouts for what the ideal width and depth of a screen should be based on unit composition and terrain as shown below.

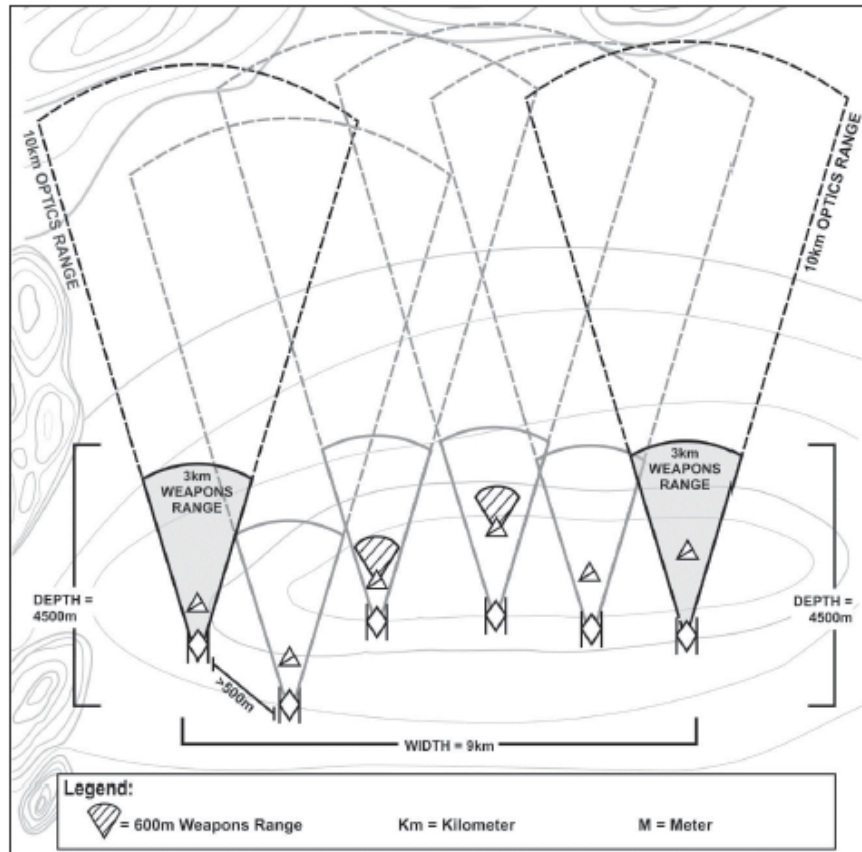


Figure B-1. ABCT Scout Platoon Operational Distance (Unrestrictive Terrain)

Above: an example taken from Annex B, ATP 3-20.97

Units that cannot position themselves far enough forward to provide sufficient time and maneuver space to the protected force can incorporate elements of engagement area (EA) development to disrupt approaching units. White phosphorous mortar rounds can obscure enemy observation of the area, slow maneuver, as well as deny use of high-speed avenues of approach. Artillery or mortar fire planned and executed along likely avenues of approach can break up movement formations and disrupt enemy progress. Units should deploy in sector with class IV items to establish hasty obstacles. Each vehicle should deploy with enough pickets and concertina wire to create one 25m triple strand concertina section. Units can utilize direct fires to slow and disrupt enemy forces. However, the unit should avoid becoming decisively engaged during this action.

Observation: Units fail to adequately rehearse and prepare for a rearward passage of lines (RPOL) as a part of the scheme of maneuver for a defense. This causes unexpected friction and delays when displacing at the conclusion of the security mission. Units attempting to conduct an RPOL must be able to complete the task without becoming decisively engaged while collapsing the security area.

Best Practice: BCT, squadron, and troop SOPs should standardize markings and communications for passage. Successful units rehearse the passage lane with the security element and the main body escort



element. Successful rehearsals include the troop commander, a leader from the troop trains, and a representative from each platoon participating in the passage. In line with ATP 3-20.96; ensure that the escort elements from the stationary unit understand the scheme of maneuver and sequencing for the displacing elements of the RPOL. The escorts must understand the number of serials moving through the passage lane, as well as the composition and timing, and the timing of these serials arriving at the passage lane. Perform time distance analysis or mounted rehearsal of the route to establish the exact timing under conditions expected (at night and in one or more forms of contact). Serials and their assigned escort vehicles must utilize far and near recognition symbols appropriately to avoid stopping the serial's movement at the link up point. If the signaling methodology is properly understood and rehearsed, the methodology allows the serial to perform the near recognition symbol with their escort and continue movement immediately without stopping. Units should identify triggers to maneuver slower trains vehicles through the RPOL lane prior to displacement of the platoons to prevent unnecessarily slow or congested RPOL execution. Units must have a recovery PACE plan to remove non-mission capable vehicles and equipment from the battlefield in a timely manner. Recommend P: Organic recovery asset, A: like vehicle recovery, C: Escort unit recovery asset, E: secure sensitive items and abandon vehicle. Units should request that the escort vehicles position a recovery vehicle at the link up point to serve as the contingency recovery vehicle. Positioning the contingency recovery vehicle forward in the passage lane will mitigate the time required to notify and push the vehicle forward through the security area to the point of recovery.

Observation: Troop commanders and platoon leaders regularly fail to brief detailed commander's security guidance and to confirm shared understanding by their subordinate leaders. Units typically have underdeveloped guidance for engagement, disengagement and displacement criteria. The failure to communicate the commander's security guidance results in unresponsive, inflexible units during contact.

Best Practice: A best practice is when commanders brief security guidance by phase. Troops must clearly establish the engagement criteria for key weapon systems, and develop engagement priorities for their employment. Effective guidance outlines the conditions for employment of key weapon systems, each form of contact, and defines the enemy capabilities that exceed that echelon's engagement criteria. Leaders plan and communicate these engagement priorities to the individual scout at the observation post (OP) level. For example, a commander's engagement criteria

Example Commander's Engagement Criteria:

- *An OP that identifies a single tracked or wheeled vehicle will engage with their OP's javelin.*
- *If that same OP identifies a section of BRDMs or BMPs, they will maintain visual contact and pass off that target to the supporting vehicle section to engage with 25mm.*
- *Engage a section of armor with TOW missiles at the platoon level.*
- *A platoon of armor will be the trigger for engagement by rotary winged aviation while maintaining visual contact.*
- *Stationary BRDMs and BMPs, up to platoon size, outside of direct fire range will be engaged with Troop 120mm mortars.*
- *Stationary armor outside of direct fire range will be engaged with 155mm artillery.*



A successful TTP is immediately conducting a confirmation brief to ensure their subordinates retain and understand critical information, particularly on security guidance such as engagement, bypass, disengagement, and displacement criteria.

This brief should solve any remaining confusion regarding the mission. Units should codify the content of the confirmation brief in their TACSOP and the time limit for a confirmation brief should be no more than 15 min. During rehearsals, leaders must use injects to confirm understanding of their commander's intent and security guidance. The commander or select personnel (recommend S2 for the squadron, executive officer for the troop, or senior scout for the platoon) select an appropriate moment during scheme of maneuver to discuss actions on contact. Leaders specifically ensure subordinates understand what reaching engagement and disengagement criteria means for their unit, and can execute those actions when necessary.





Section II: Armor and Infantry in the Defense Against a Near-Peer Threat

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The main reason we conduct a defense is to set the conditions to transition to the offense. At the company level and below we must recognize the significance of properly preparing for defensive operations. Units planning against a near peer threat at the National Training Center (NTC) will focus on preparing for an attack or conducting the seven steps of EADEV in preparation for a defense, but rarely do units prepare simultaneously for both. Commanders must think through transitioning into defensive operations prior executing offensive operations.

At the company level, commanders must forecast requirements to transition to the defense even when preparing for offensive operations. Whether a unit is successful in seizing an objective or not a company will transition to a hasty or deliberate defense, by either design or necessity. They also must consider the support they will require to transition successfully.

The most difficult part of planning for a defense is identifying the best place to establish fighting positions. The reason it is difficult to determine where to defend is due to unit logistical status, terrain, enemy situation and class IV accessibility. Choosing a location to establish a defense is critical to maintaining combat power and setting conditions to continue offensive operations. The terrain must be defensible within the scope of what assets are on hand. Too often units fail to use the terrain effectively when establishing a hasty defense, to include when to conduct resupply operations. It is naive to think every mission will go according to plan. There are so many factors effecting a battle that a commander must be able to adjust to conditions rapidly.

Logistical status: Lack of supplies will bring all operations to a halt. The commander must know at all times how much CL I, CL III (B and P), and CL V is on hand and available. Knowing the status of these classes of supply will determine when and where to establish a defense upon completion of an offensive operation for either resupply operations and/or how long they are able to defend when they transition. Commanders do not want to announce the location of their battle positions until necessary. Forecasting and managing classes of supply for a company will limit exposure, as commanders can plan to conduct resupply operations. Conducting resupply operations is risky in nature, but units use resupply as a time to prep for the next operations instead of considering it a current operation. Like the U.S. military, a near peer threat will attempt to disrupt supply operations.

Asset availability: What engineer assets, if any, are available to the company? How soon can those assets react to the situation? Has the company worked with the engineer assets prior to allocating the assets? Those questions determine how the commander transition to a defense. The commander should build habitual working relationships with the engineer support element leadership to identify capabilities, to include crew experience, dig and/or build time, and how much they can accomplish to meet the maneuver commanders intent. Commanders should consider immediately employing engineers to establish fighting positions upon completion of offensive operations. Maneuver units must be prepared to help the engineers when the commander employs those assets. Too often at the National Training Center, maneuver units will focus on establishing their fighting positions and expect the engineers to handle the heavy load of emplacing obstacles. Unit leadership should incorporate ever Soldier into establishing the defense.



Enemy: A near peer threat will not give up ground willingly. The enemy will be offensive minded to achieve their objective. Commanders must think like the enemy and understand where they will likely attack. Our forces must be ready to transition to defensive operations at all times.

The ability to rapidly transition to defensive operations is vital to the success of all maneuver units; whether higher echelons task a unit to conduct a deliberate defense, a unit must transition to a hasty defense following offensive operations, or a unit transitions to the defense to conduct resupply operations. A commander must anticipate his or her unit's requirements to make that transition and successfully defend against a near peer threat.





Planning and Integrating Obstacles and Indirect Fires in the Defense

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Observations: Successful defensive operations against a near peer threat require units to thoroughly conduct engagement area development. Most units are able to effectively execute defensive operations, but struggle with the detailed planning required for obstacle emplacement and the time distance analysis required to choose effective locations for obstacles, indirect fires, and direct fires.

Discussion: During National Training Center rotations, training units understand how to plan a defense, but lack the ability to synchronize assets and integrate effective indirect fires. Units also struggle with integrating obstacles because not enough analysis is done to determine the amount of time, number and type of engineer assets, and how much Class IV is required to achieve the desired obstacle effects. Units also fail to position direct fire assets such as tanks, Bradleys, or Strykers beyond the counter mobility obstacles and thus do not provide a security zone for the engineers as they construct the obstacle belt. This leaves the engineers vulnerable to enemy indirect fire and spoiling attacks.

After units determine where to kill the enemy, the decision of what type of counter mobility obstacles units choose to construct will depend on how much Class IV fortification materials they have on hand, the engineer assets available to them, and how much time they have to construct obstacles. Units must also consider where to build survivability obstacles and whether or not they will have time to dig these defensive positions.

The use of Fires throughout rotations is generally a weakness. A lack of detailed planning for defensive operations limits the rotational training unit's ability to synchronize enemy maneuver with Fires. Fires technical rehearsals often lack sufficient detail with regards to observer plans, refined Target List Worksheets, and TTLODAC-driven planning. Additionally, the lack of associated triggers for when fires are called and who initiates them prevents units from disrupting the enemy's movement and often prevent rotational training units from regaining momentum during their counterattack. Units also do not effectively conduct the time/distance analysis in order to determine when to fire their artillery or mortar targets. The S2, FSO, and TF Engineer should create a comprehensive fires plan based on estimated enemy travel speeds and formations, amount of time it will take the enemy to breach specific obstacles, and how long it will take to process and fire each target. Doing this level of analysis and planning will allow units to create effective triggers in order to quickly synchronize fires and achieve the desired effects against enemy formations.

Best Practices: Units that conducted detailed planning and asset management were able to effectively integrate obstacles while also synchronizing Fires with the enemy's movement.

Plan and Integrate Obstacles – For defensive planning, units should always assign an officer, regardless of branch, the role of Task Force Engineer. Having a trusted agent tasked with planning the placement of counter mobility and survivability obstacles will pay dividends when the unit goes into the defense. Often a unit's S3 and Plans Officer focus solely on offensive operations that lead up to or follow the defense. Most units do not have an assigned TF Engineer and therefore fail to assign this role to anyone on the Battalion Staff. They instead leave the defense planning efforts to the attached Engineer Company Commander who may or may not be with the Battalion while they are conducting MDMP for the operation. Assigning an officer within the Battalion as the TF Engineer allows him/her to integrate their planning efforts with the rest of the staff and ensures that they plan within the commander's intent. They can also reference Army TM 3-34.85, Engineer Field Data as a tool in helping them plan the defense. Using Chapter 5 (Defensive Operations and Obstacle Integration Framework), Chapter 6



(Constructed and Pre-constructed Obstacles), and Chapter 7 (Landmine and Special-Purpose Munition Obstacles), will allow the TF Engineer to effectively plan and integrate obstacles to achieve the commander's intent. These chapters list the engineer assets, materials, time and planning factors required to construct a Disrupt, Turn, Fix, or Block obstacle as well as survivability obstacles. At all levels, any trusted officer or NCO can use Army doctrine as a source of reference for technical data, tactics, techniques, and procedures for information most commonly needed by engineers.

Most units only push the Battalion Scouts forward, which do well in identifying maneuvering enemy formations, but cannot effectively disrupt or delay an enemy attack. Units should always send an element forward to protect the engineer assets in order to provide them enough time to execute a Rearward Passage of Lines through the obstacle in the event of an enemy spoiling attack. If units do not provide ample security forward of their obstacles, they risk losing their engineer enablers to enemy direct and indirect fire.

Plan and Integrate Indirect Fires – Fire support planning is the continuing process of analyzing, allocating, and scheduling fires to describe how fires are used to facilitate the actions of the maneuver force. A fire support plan is a plan that addresses each means of fire support available and describes how Army indirect fires, joint fires, and target acquisition are integrated with maneuver to facilitate operational success. “Successful fire support planning is the result of the FSCOORD/chief of fires, and FSO’s aggressive contribution to the commander's planning and decision making process. In making this contribution, they employ principles of fire support planning, coordination, and execution as a guide. In advising the maneuver commander on the application of fire support, the FSCOORD/chief of fires/brigade fire support officer also review fire support requirements against basic fire support considerations that guide fire support planners in the development of fire support plans” (para 3-10, Ch. 3 FM 3-09, 04 April 2014).

Fire Support Teams that executed Fires Technical Rehearsals prior to the Battalion’s Combined Arms Rehearsals were better able to understand the overall defense plan and also ensured that they understood the commander’s intent. Doing so also created shared understanding across the battalion and allowed companies and platoons to identify windows of opportunity to exploit the enemy’s weaknesses. Company and platoon FSOs that understood the Fires plan were able to ensure that all subordinate leaders could effectively execute the primary and alternate observer plans.



Section IV: Defensive Operations for the Field Artillery Battalion

Introduction

The purpose of this paper is to provide a context for Field Artillery (FA) units executing defensive operations in a Decisive Action Training Environment (DATE). The specific unit of focus for this paper is the Brigade Combat Team's (BCT), Direct Support (DS) Field Artillery (FA) Battalion. The primary audiences for this paper are Fires Battalion Staff Officers and Non-Commissioned Officers, Battery and Forward Support Company Commanders, and First Sergeants. This paper is a collaboration of Key Developmental billet complete Observer Coach Trainers (OC/Ts) with an aggregate of ~100 rotations of experience at the National Training Center (NTC) Fort Irwin, CA.

This paper is separated into four focus areas consisting of: Battalion Operations, Battery Operations, Sustainment Operations, and radar employment considerations. The Battalion Operations section highlights the FA Battalion's tasks associated with defensive operations. The Battery Operations section provides insights from a Battery Commander's perspective to highlight Troop Leading Procedures (TLPs), execution, and subsequent transition. The third section of this paper is Sustainment Operations insights for the defense. Lastly, this paper will identify radar employment considerations specific to the defense.

Battalion Operations

The Battalion Operations Officer (S3) is responsible for understanding the Brigade defense and ensuring the Battalion is postured to deliver fires in order to meet the BCT CDR's desired effect in support of the Brigade's defined deep and close fights. The success of the Battalion is contingent upon the staff's ability to conduct deliberate parallel planning with Brigade. The Battalion Staff is responsible for anticipating applicable Field Artillery Tasks (FAT) IAW the enemy Situation Template (SITEMP), enemy Event Template (EVENTEMP), friendly scheme of maneuver, positioning of artillery assets, and proper management of Class V to accomplish the BCT CDR's desired effect. The Modified Combined Obstacle Overlay (MCOO) is an essential tool developed during Mission Analysis that can be used to facilitate parallel planning with the Brigade staff. The Battalion S3 must maintain communication with the Brigade Fire Support Officer (FSO), the Fire Support Coordinator (FSCOORD) and the Brigade S3 to understand the Brigade plan. During defensive operations, the Battalion Staff must continually ask the following questions enabled by the Six TOC Functions, running estimates, and Military Decision-Making Process (MDMP):

- Based on the enemy EVENTEMP and the brigade's defensive plan where can we anticipate targets?
- How much Remote Anti Armor Mine System (RAAMS), Suppression, and Obscuration will the Brigade's plan require?
- Can we execute our P.A.C.E Plan at pace to execute seamless Fire Mission Processing?
- Does the Intelligence Preparation of the Battlefield (IPB) and templated Position Area for Artillery (PAA) support the most achievable firing solutions and transitions to disrupt an enemy Attack and engage targets on the High Payoff Target List (HPTL) or targets of opportunity.
- Are we providing Battery Commander's sufficient time to conduct proper Reconnaissance, Selection, and Occupation of Position (RSOP) and TLPs, specifically turret loads / Class V cross loading?



The staff's ability to answer these questions ensure recommendations can be made to the FSCOORD for decision(s), conditions are set to support the Brigade fight and Batteries have adequate time to conduct TLPs.

Battery Operations Troop Leading Procedures

As in all operations, Battery Commanders and other Battery leaders will follow the familiar eight steps of Troop Leading Procedures (TLPs) during defensive operations. Since the enemy retains the initiative during defensive operations, the amount of time allocated for Battery and lower level TLPs could be limited. Commanders must practice and rely on unit Standard Operating Procedures (SOPs) to help streamline the process. Using a blank Operations Order (OPORD) template, a practiced Tactical SOP (TACSOP), and clear priorities of work and rehearsals will ensure the Battery is prepared for defensive operations. TLP steps may be out of order or repeated as the Brigade's and Battalion's defensive plans are developed and refined.

The Battery Commander's thorough understanding of assigned FATs is critical. The Battery's FATs will dictate the ammunition load within the firing section, Battery Trains employment, movement options and resupply triggers among other considerations.

The Battery Commander's plan must balance coverage at multiple areas which include reconnaissance elements, units that may be well forward of the engagement area, the actual engagement area itself, and the eventual transition to the counterattack. However, the Battalion should provide initial positioning guidance a bottom up refinement timeline and technical rehearsals schedule are key for Battery Commanders to complete their plan by ensuring they can achieve technical solutions to all assigned targets. In addition, Commanders and subordinates must ensure their plans are nested into their higher Headquarters (HQ) plan to transition to the counterattack. Ensuring triggers are identified to dispatch RSOP and move PAAs, maintaining firing capabilities as the Battery moves forward, and rehearsing the technical solutions to counterattack targets are all essential requirements of the defensive plan.

Reconnaissance, Selection, and Occupation of a Position (RSOP)

The Battery Commander will conduct a reconnaissance of the proposed position as time allows. Ideally, the reconnaissance will consist of a ground reconnaissance with identification of proposed routes, obstacles, ambush sites, survey locations, and howitzer positions. Reconnaissance allows the Battery Commander to traverse the terrain that the Battery (Platoons) will cover enroute to the position. Reconnaissance can also accomplish survey coordination, engineer support, route security, adjacent unit coordination, and fire support. During the reconnaissance, the Battery must consider the movement criteria and how it affects the mission or support for the maneuver force. The Battery cannot lose firing capability and at all times must be prepared to receive emergency missions if other Batteries are also maneuvering. Another factor to consider is the enemy situation and this must be thoroughly understood. The disposition, intentions, and capabilities of enemy forces must be analyzed as this could determine the route, positioning, dispersion techniques, and occupation techniques utilized to support the maneuver force.

Upon completion of RSOP the Battery must prepare an adequate defense in order to survive and provide continuous fire support to the maneuver commander. A defense is more effective when there is adequate time to thoroughly plan and prepare defensive positions.



Battery Defense Against Enemy Capabilities

Enemy forces direct their actions against the field artillery to affect their ability to deliver fires. Enemy forces may try to detect field artillery elements through the study of doctrine and the processing of information collected by using reconnaissance and surveillance as sources of information. Personal communication devices, such as cellular phones, permit untrained observers or irregular forces to report unit positions for targeting. Visual observation, predicted activities, bumper markings, and leftover rubbish can also be used for collection of information supporting the enemy targeting effort. However, the greatest threats to the field artillery Battery come from counterfire, air attack, and ground attack.

To defend against these threats the Battery must understand the tactical situation and identify potential friendly and enemy weaknesses. The Battery must undertake actions to provide for early and accurate warning of threat activities. This will protect the Battery from surprise and reduce the unknowns in any situation. Unit operating procedures must contain provisions for Battery self-defense. A defense diagram must include all direct fire crew serve weapons integrated with gunnery techniques such as firing Killer Junior (time fused, high explosive rounds fired in direct fire) on dismounted avenues of approach and flechette (antipersonnel-tracer) rounds for perimeter defense.

Survivability

After the Battery has occupied its PAA, the Battery Commander must consider survivability criteria to effectively mass indirect fires for the BDE and maintain combat power. Mission analysis will dictate survivability criteria and it will continuously change to meet the dynamic variables of the operation. Survivability criteria is most commonly constructed at the BN echelon with guidance from the Battalion Commander and input from running estimates of the battalion staff. Survivability criteria will trigger movements within designated PAAs based on METT-TC or SOP. As the Battery masses indirect fires to neutralize the enemy during defensive operations it is important to continuously adhere to the survivability criteria to defend against enemy counterfire.

Fire Direction Center

In defensive operations, the controlling FDC, at the Battery level, is responsible for maintaining all five requirements for accurate fire. Additionally, the FDC must maintain accurate digital and analog Fire Support Coordination Measures (FSCMs). Once the FDC receives a Target List Work Sheet (TLWS) from Battalion, it is imperative for the Battery level FDC to conduct multiple internal technical rehearsals prior to the Brigade or Battalion driven rehearsal. During defensive operations, the internal technical rehearsals must at a minimum focus on all aspects of the FATs.

- How many RAAMS rounds do we have on hand and do we have an achievable firing solution?
- Are there enough PAAs planned to survive to during high volumes of fire?
- Will the FDC need to move for survivability or just howitzers?
- Should an alternate FDC be established for redundant technical control at the Battery level?

The internal technical rehearsal also ensures the correct ammunition, such as propellant, projectiles, fuses and primers are on the correct howitzer to support the TLWS. The FDC also utilizes the technical rehearsal to identify and report FSCM violations, intervening crests, range or other ammunition issues that ultimately prevent the successful firing of the mission. The TLWS is a key fighting product that provides essential information for the FDC and Battery leadership to continue executing TLPs. The Battery level



FDC provides refinements to the Battalion FDC. These refinements include, but are not limited to: Gun Target Line (GTL), Max Ordinate (MAX ORD), charge, or any other variable such as MET updates that will prevent the mission from firing or require the Battalion Commander to make a decision. This data is useful to the BCT fires cell in order to maintain a permissive joint fires environment allowing the synchronization and integration of fixed wing, rotary wing, and other Echelons Above Brigade (EAB) assets in support of the defensive operation.

Transition

Units at NTC often struggle during transitions from defensive operations into the counter attack. Preparation for transitions is paramount for units to succeed in the next phase of operations. Planning for successful transitions lies primarily at the BDE and BN level; however, Battery Commanders need to understand how they fit into the larger plan in order to succeed. At the Battery level, Commanders need to understand their FATs, current location, subsequent locations, and ammunition required for their transition to the next phase. Artillery units often fail to preposition ammunition loads for the next phase of the operation. For instance, units transitioning from the defense to the counter attack understand their next location, but they lack detail in understanding the munitions required at the next PAA. Units must have a TLWS that encompasses transition targets to influence a possible enemy counter attack and friendly branch plans. Battery Commanders need to understand transition points with associated FATs to set conditions for the next phase of the operation. If units understand the upcoming FATs and plan, they will know if their Battery is in the correct position, have the correct ammo and are prepared to transition into the next phase of operations.

Sustainment Operations

Sustainment planners and leaders must plan for sustainment functions required to build combat power such as personnel services, health service support, and logistics. The Battalion S-1 tracks personnel and coordinates for personnel replacement as necessary. The Medical Platoon conducts medical treatment, medical evacuation, and medical logistics/supply. The Forward Support Company (FSC) is responsible for executing logistics functions within the Battalion. During the defense, units must focus on building combat power and providing necessary supplies to the Batteries as the unit strives to regain the initiative.

As stated in ATP 3-09.23, supply lines are frequently shorter in the defense. Establishing a Rearm, Refuel, and Resupply Point (R3P) as Batteries conduct rearward movement is advantageous. Key supply classes for this R3P include CL V (DPICM, RAAMS, and SMK (M825/A1) depending on the defensive tasks), CL III (B), and CL IX (Repair Parts). This will enable the firing Batteries to execute their assigned FAT as well as repair equipment with maintenance issues upon arrival to their PAA. Generally, RAAMS is required during the early stages of the defense and M825/A1 Smoke is required in the early stages as the Cavalry Squadron conducts a Rearward Passage of Lines (RPOL) and in the later stages of the defense in preparation for the transition to the counterattack.

During defensive operations, sustainment planners must maintain an accurate operational picture as the unit progresses through the defense. Planning, communicating, and executing resupply triggers is critical for sustainers to supply the required ammunition to the firing Batteries on time. This understanding will enable the FSC to be responsive to ensure the Battalion can fight the current defensive fight as well as create conditions for a successful attack. Overall, sustainment planners must anticipate ammunition requirements based on assigned FATs and always stay synchronized with operations.



Radar Employment Considerations

The employment of Weapons Locating Radar(s) (WLR) in support of defensive operations. The BDE Fire Support Officer (FSO) or Targeting Officer must first understand the Operational Environment (OE) and the critical tasks associated with the defense. As the situational understanding is received, the planner conducts a “reverse” time and distance analysis from the No Later Than (NLT) defend time to the actual distribution of the Radar Deployment Order (RDO). An example is Unit A will defend NLT at H+10, The WLR needs to be in position ready to observe at location NV123456 by H+9; it will take two minutes to march order the system and five minutes to emplace. The section must travel X kilometers from position A to position B. It will take X amount of time for the WLR to travel from position A to position B. Once WLR has arrive to position B, a refined reconnaissance is required to ensure WLR is at an optimal location or position ready to observe. This process could take a significant amount of time due to time available, terrain, training, and experience. The planning and execution of WLR employment and understanding all considerations associated is vital and may be the difference in the overarching success of fire support operations.

Target Acquisition in Support of Defensive Tasks

The WLR is a critical part of the counterfire fight. An effective counterfire fight allows for freedom of maneuver and force protection by destroying or neutralizing enemy indirect fire weapons systems. The primary mission of a WLR is to track hostile fire weapon systems. The primary role in the defense is to provide priority counterfire mission processing through the use of target data collection. This is achieved through the use of site considerations, radar positioning with engineer support and zone management during planning.

Radar positioning is central to defensive operations in part that tunneling and screening crest should be utilized for survivability considerations. This can be accomplished through the use of engineer support. Engineer support assets can be used to improve on the current site and/or they can construct a means to increase the survivability of the WLR. Target acquisition planners must also consider transitions to offensive tasks such as counterattacks.

The first consideration is the use of the radar’s zone capabilities to provide coverage for critical units or installations using Critical Friendly Zone (CFZs). CFZs are an indication of assets that are deemed as essential to mission accomplishment. If the Brigade Commander does not identify these assets, the FSCoord or FSO must query the commander for the necessary guidance. Once the guidance is obtained, the information is passed to the Fires Cell for implementation. Another consideration is the development of Call for Fire Zones (CFFZs). CFFZs indicate a possible enemy indirect fire system and therefore the intent is to suppress, neutralize or destroy those weapon systems. Lastly, Artillery Target Intelligence Zones (ATIZs) assist in the uncertainty of hostile weapon systems and to help the development of the situation.

Conclusion

In conclusion, this paper provides key lessons learned for FA battalions executing defensive operations. The FA battalion staff and S3 have a large role in ensuring Battery Commanders have the necessary information, FATS, or fighting products available to conduct TLPs, identify friction, and ultimately ensure they have a firing solution for all primary and alternate targets assigned on the TLWS. Additionally, Battery Commanders must understand what is next. What is expected of the Battery during the next phase? Am I ready to execute defensive operations and transition to subsequent phases? The FSC must also maintain communication with the FA Battalion Staff, S3, and Battery Commanders to ensure the Battalion is



postured to support the current defense and beyond. Lastly, successful radar employment is critical to providing necessary counterfire locating capability during defensive operations to allow maneuver to hold their battle positions.

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Section V: Lift Aviation Assets in the Defense and Counterattack

Defensive operations for a Brigade Combat Team (BCT) are complex operations requiring the synchronization of numerous units across multiple lines of effort. Critical to the success of any defensive operation and to subsequent counterattacks is the BCT's ability to rapidly move personnel and equipment across the battlefield to support sustainment as well as movement and maneuver operations. Aviation assets are particularly valuable in the defense because of their speed, mobility, and versatility.¹ Directly or indirectly, lift aviation is able to support each of the fundamentals of the defense (disruption, flexibility, maneuver, massing effects, operations in depth, preparation, and security).² These valuable assets, require in depth planning and analysis prior to executing the defense to ensure efficient execution.

During preparation for the defense, lift aviation can play a large number of roles to facilitate the ground force commander's vision. A major aspect of the defense is to exploit the advantages of terrain³, occupying key terrain that will force the enemy into committing their forces piecemeal or forcing them into canalizing terrain. A successful technique observed at the National Training Center (NTC) is the use of UH-60 aircraft to circulate the brigade commander throughout the battlefield with his subordinate commanders to recon the templated defensive positions. This recon provides subordinate commanders with an aerial view of the area to increase situational awareness, understanding of the overall plan, and how each position is mutually supporting.

Additionally, in order to take full advantage of lift aviation's ability to rapidly move personnel and equipment across the battlefield, supporting units need to understand the unique requirements of each airframe as it pertains to landing zone/pickup zone (LZ/PZ) analysis, loading requirements, and best practices for packaging materials for transport. For example, when preparing CL IV barrier materials for resupply of a forward unit, the Soldiers at the PZ need to understand how to place the material on pallets, how tall the pallets can be stacked, how many pallets of what type each aircraft can take and what machinery is required to move it, etc. This portion of the preparation can be accomplished by having a subject matter expert from each airframe travel to the individual unit to act as a liaison prior to the actual execution of the defense to speak directly to the unit involved in the resupply.

Perhaps the most important part of the preparation of the defense is also the part that is overlooked the most: airspace. Brigades are responsible for airspace management of Army airspace users within their AO.⁴ To properly construct airspace for the execution of the defense, the Brigade Aviation Element (BAE) must be involved from the beginning of the planning process to deconflict air routes with planned firing positions to facilitate the rapid movement of aviation assets across the battlefield without desynchronizing fire support for forward units. When analyzing air routing, units need to consider locations of logistical resupply points (LRPs), combat trains command posts (CTCPs), ambulance exchange points, as well as Role I and Role II medical facilities. The Brigade S4 and Support Operations (SPO) specifically need to involve themselves in resupply planning to ensure that the air routing supports their scheme of support. When selecting areas for ambulance exchange points, the MEDEVAC unit needs to provide feedback to the ground units as to where acceptable locations would be to minimize the time from 9-line request to aircraft launching.

¹ FM 3-90-1, "Offense and Defense Volume 1", March 2013, para. 6-39

² FM 3-90-1, "Offense and Defense Volume 1", March 2013, para. 6-2

³ FM 3-90-1, "Offense and Defense Volume 1", March 2013, para. 6-22

⁴ FM 3-52, "Airspace Control", October 2018, para. 2-42



While the brigade is defending, it is vital for the aviation task force to maintain an up to date Common Operational Picture (COP), and for the lift aviation assets to be kept informed of the battle's progress. Doing so ensures that lift aviation assets can posture crews as required to surge capabilities during critical points in the battle as it pertains to each aircraft (e.g. additional MEDEVAC or mass casualty evacuation capabilities during templated large scale battles, additional crews available for resupply operations after a successful defense). During the defense, the enemy may have the initiative, and as such, the commander may have to frequently shift shaping operations or supporting efforts to contain the enemy's attack until the defending force can seize the initiative. This may require the commander to adjust subordinate unit AOs, repeatedly commit and reconstitute the reserve, and modify the original plan.⁵ As stated earlier, one of the defining aspects of lift aviation support is the ability to move personnel and equipment across large distances quickly, which in turn makes it a critical asset in a rapidly shifting area of operations to allow the ground force commander to react to changing conditions and employ the reserve force at the optimal time and place to regain the initiative.

Once the initiative is regained, the brigade commander may opt to execute a counterattack. A *counterattack* is an attack by part or all of a defending force against an enemy attacking force, for such specific purposes as regaining ground lost or cutting off or destroying enemy advance units, and with the general objective of denying to the enemy the attainment of the enemy's purpose in attacking.⁶ Counterattacks lend themselves to execution using lift aviation assets due to the fact that the window of time for their execution is typically very small, and lift aviation is uniquely suited to the movement of large numbers of forces rapidly to facilitate the attack in an air assault operation. To successfully execute a counterattack, the ground force commander must wait until the enemy is at their most vulnerable, which is when the enemy is attempting to overcome friendly defensive positions.⁷ Critical to the successful counterattack is the planning process to facilitate surprise, control, and coordinated fires. To properly execute a counterattack air assault, planning needs to have begun during the preparation phase. The ground force needs to have templated a predicted area for the counterattack and coordinated airspace to facilitate the movement of troops and equipment via lift aviation to surprise the enemy and not to interfere with the employment of fires.

Lift aviation assets are a combat multiplier in the defense. Their ability to move across the battlefield for sustainment operations and troop movements is unmatched and provides the ground force commander with tremendous flexibility and support. As with all operations however, planning and having a shared understanding of that plan are absolutely vital to their efficient employment. Direct coordination with supported units and involvement in the brigade's Military Decision Making Process (MDMP) from the outset are critical, and ultimately provide the ground force commander a massive range of options for employment to achieve the desired endstate.

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⁵ FM 3-90-1, "Offense and Defense Volume 1", para. 6-16

⁶ FM 3-90-1, "Offense and Defense Volume 1", para. 3-148

⁷ FM 3-90-1, "Offense and Defense Volume 1", para. 3-149



Section VI: Engineer Success in the Defense: Rapid Preparation, Execution, and Transition Resulting in the Defeat of Enemy Forces

Although the defense is an opportunity to inflict tremendous casualties and damage to enemy forces, many Army units and leaders view the defense with suspicion. Leaders often choose to spend the vast majority of training time on offensive tasks rather than defensive fundamentals. With appropriate planning and preparation for defensive operations, units can halt the enemy's momentum, regenerate their own combat power, and then regain the initiative for offensive operations. According to ADP 3-90, this is the primary purpose of the defense⁸. When properly utilized, Engineers shape the battlefield, enhancing maneuver units ability to stop the enemy's advance and destroy them in an engagement area (EA). This paper discusses common friction points observed during National Training Center rotations to enable units to aggressively train and prepare to repel a fierce enemy attack – at NTC or wherever America needs them.

Success in the defense is no accident. Doctrine explicitly states “It is difficult to transition to the defense without prior planning”⁹. Transitions must be forecasted and planned by the Brigade Engineer Battalion (BEB) staff to allow maneuver commanders the greatest flexibility when preparing the defense. Engineer Battalion staffs struggle with three facets of the defensive plan: understanding the actual Engineer effort available, task organization, and logistical support to the defense.

First, the BEB planning effort during the Military Decision Making Process (MDMP) must focus on gaining and maintaining an accurate understanding of what engineer capabilities are available for preparation of the defense. BEBs must maintain accurate running estimates of combat power and CLIV on hand, enabling them to forecast their total defensive effort available. This forecast is ideally created using historic obstacle emplacement rates as well as data from TM 3-34.8 and ATP 3-90.8 when actual emplacement rates are not available. Army doctrine contains dig rates, CLIV estimates for different types of obstacles, and equations used to compute the total effort available and required for a given defensive frontage. Once the BEB staff has forecasted the total effort available, they can present options to the Brigade Engineer (the BEB Commander) and brigade planners for weighting defensive effort across the brigade's EAs. This will lead to the task organization required to complete the defensive plan.

Second, BEB staffs must publish the defensive task organization in a timely manner. Delaying this linkup of Engineer Assets with their supported Task Force decreases the amount of Engineer effort available by decreasing preparation time in the EA. The BEB must work with the brigade staff to publish the defensive task organization as early as possible, ideally prior to EN units departing to execute the offense. This will allow Engineer units to plan for the transition to the defense at the Company and Platoon level and ensure that minimal time is lost due to delayed linkups after the offense's culmination.

Last, the BEB staff must coordinate logistic support to the defense in accordance with the task organization. The most frequent failures in logistical planning are related to CLIII and CLIV. CLIII must be coordinated with the supported task force, as the BEB does not have enough fuelers to support dig assets in multiple EAs across the BEB's area of operations (AO). Along with maintaining accurate running estimates of CLIV on-hand, the BEB staff must plan for transportation of the CLIV to each EA. Successful BEBs plan for the CLIV to be transported by assets internal to the brigade, either with the supported task force or with Alpha Company of the BSB. It is difficult to forecast the defensive location accurately enough 72 hours in advance to request transportation by the CSSB.

⁸ Department of the Army. ADP 3-90 Offense and Defense 2019 paragraph 4-2, p. 4-1

⁹ Department of the Army. ADP 3-90 Offense and Defense 2019 paragraph 3-121, p. 3-19



Engineer leaders must prepare for the defense. One way to accomplish this is through rehearsals. When the time and resources are available leaders should ensure their Soldiers are constructing practice obstacles of triple standard concertina (TSC), anti-vehicle ditch (AVD), as well as survivability positions, and the supporting tasks that are critical to the success of these defensive tasks. These include but are not limited to loading and downloading a bulldozer (especially at night), performing a functions check on a volcano, demolitions prep, and driving and operating all equipment and vehicles with night vision devices.

Once it is clear that friendly forces have transitioned to the defense, it is time to construct obstacles and develop the EA. In order to quickly emplace their assigned obstacles, leaders should ensure that the start and end points of the obstacle are templated and disseminated down to the lowest level. If the obstacle will not meet the desired intent as determined by leaders on the ground then these points must be adjusted. It is important to identify whether leaders at the company or platoon levels are authorized to change to the start and end points of an obstacle as well as the communication plan following a change. As stated in ATP 3-90.8, obstacles should ideally reinforce the restrictiveness of terrain to reduce the amount of obstacle effort required to have the same or similar effect on the enemy¹⁰.

Once the start and end points are identified, subordinate leaders can determine how to get their equipment to these locations, where to stage support equipment, and where to establish C2 nodes to include the company command post (CP). Often, Engineer elements view the defense as a construction jobsite rather than a tactical objective. Reversing this mindset is important due to how far forward these Engineer units operate during the defense. Establishing an objective rally point (ORP) ensures that subordinates know where to fall back to in the event they take contact. In the event of contact with enemy armor or aviation, Soldiers at all levels need to know what actions to take and where to re-consolidate, especially since most echelon above battalion (EAB) Engineer units are not equipped with weapons required to suppress or destroy either of those threats.

The enemy does not want friendly forces to emplace obstacles and develop a lethal EA. The enemy may conduct a spoiling attack, either applying just enough combat power to force friendly forces to withdraw from the obstacle, or destroy Engineer assets outright to ensure they cannot emplace further obstacles. Disengagement criteria is important to define prior to occupying the obstacle or objective. Leaders must define whether friendly units will fall back in the event of a certain sized enemy element, enemy capability, or fight in place. Along with disengagement criteria, a retrograde plan ahead of time will reduce confusion and increase the likelihood friendly forces will be able to reconsolidate with minimal losses to friendly personnel and equipment. Ideally the withdrawal plan should be rehearsed if time and resources are available.

In order to identify enemy forces approaching the friendly objective, Engineers must either place reconnaissance elements from within the organic force or ensure that communications are tied into the operational environment owner. While tying into friendly communications sounds easy, it can be difficult to execute at the company and platoon level. The vehicle or CP monitoring friendly communication must have at least two radios as well as a trained radio telephone operator (RTO) who is aware of what information is critical and how to disseminate that information. Friendly scouts are often operating forward of the objective and can provide intelligence on the enemy composition and disposition. This information is only useful if it is shared with Engineers on the ground and these Engineers can respond appropriately. Once on or near the templated obstacles, leaders must ensure that obstacle emplacement begins as quickly as possible as we cannot control when the enemy will attack. The obstacle is likely forward of the majority of friendly forces and in range of enemy direct and indirect fires.

¹⁰ Department of the Army. ATP 3-90.8/MCWP 3-17.5 Combined Arms Countermobility Operations 2014 paragraph 1-9, p. 1-2



Leaders are responsible for obstacle emplacement. Soldiers need a clear task and purpose; leaders have the responsibility to ensure this is communicated down to the lowest level, allowing the obstacle to be constructed. Once obstacle emplacement begins, leaders need to be thinking about the next task. Whether this is another obstacle, fighting position, or offensive preparations, leaders need to begin preparation for follow-on tasks. Unfortunately, there are often significant delays between emplacing one obstacle and another. These delays are often preventable, or at least can be reduced. Leaders have a responsibility to minimize these delays. If the next task is clearly identified and communicated down to the lowest level it will minimize idle blade time and keep leaders and subordinates alike in a mindset that maximizes efficiency. When subordinates believe they are done and can sleep or rest at the end of a certain task and are then informed that they are not and additional tasks await, it can lead to decreased morale and lower work rates. However, when NCOs know what tasks await, they can prepare their Soldiers and their equipment for follow-on missions as well as provide bottom up refinement on future tasks.

Leaders must conduct quality assurance spot checks, ensuring that the obstacle emplaced in the correct location and will meet desired intent. However, leaders do not need to remain on site for the duration of obstacle emplacement. There is a flurry of activity leading up to obstacle emplacement and once emplacement begins there can often be a lull. Once this lull hits, leaders often think they can take a tactical pause, which is not the case. Once emplacement is started, leaders need to lean forward towards the next defensive task in order to maximize time and defensive effort.

Obstacle progress needs to be reported accurately on a regular basis. Doctrine states that each echelon must track obstacle effort two levels down¹¹. Therefore, reporting requirements are often set at the battalion or brigade level. Wire obstacles should be tracked in phases (pickets, two lower loops, and complete) while dig effort should be reported by calculated distance and with MGRS grid coordinates. Completion status either in distance complete and distance remaining or, a percentage is often required but quality or obstacle effect is frequently overlooked. For example, if a unit is tasked with completing an AVD of 1,000m the distance complete is easy to send up. However, the depth of the ditch as well as the height of the berm of said obstacle can be challenging to communicate via radio or digital methods.

Along with clear reporting of the qualities of the obstacle, it is important to report whether the leader on the ground believes this obstacle and/or EA will have the desired effect on the enemy. What often happens at the National Training Center is that Engineers simply emplace the specified obstacle yet do not ask themselves if this obstacle will truly block, turn, fix, or disrupt the enemy. Reporting becomes especially important if and when the friendly force is required to abandon obstacle emplacement or EA development either due to a spoiling attack or due to approaching a prescribed no later than defend time. As the emplacing unit pulls off, it is critical to communicate whether the obstacle intent will be met. This may trigger a reserve force to be committed to those area(s) where the intent was not able to be met.

Once complete, transfer of the obstacle can begin. Having a deliberate plan for transferring the obstacle and then executing this plan is critical to ensure obstacle effectiveness is not degraded¹². The responsibility for the transfer falls on the Engineers emplacing the obstacle. Doctrine states that the details for transfer should be established when the obstacle is sited¹³. However, if the owning unit is not present at obstacle siting, handover should be done as the obstacle is being finished and should ideally take place with a face to face handover with the commander from the owning unit and the OIC or NCOIC of the obstacle construction. If the obstacle will not meet the intent of the owning unit, the emplacing unit can

¹¹ Ibid paragraph 2-32, P. 2-7

¹² Ibid paragraph 4-23, P. 4-4

¹³ Ibid



either adjust the obstacle on the spot or request guidance from higher if other Engineer tasks are specified after obstacle completion.

Another reason it is critical to communicate planned vs. executed obstacles is that it could reduce the amount of time and resources needed for reverse breaching of friendly obstacles. Reducing the amount of time and resources needed for reverse breaching reduces the amount of time the enemy can prepare their defenses for the friendly counterattack. While reverse breaching of friendly obstacles and transition back from defense to offense is outside the scope of this paper, it is important to consider this when emplacing and reporting friendly obstacles.

In conclusion, transition to the defense starts long before the actual defense. Thorough planning is critical to successful defensive operations. Leaders at all levels own the responsibility to develop and then execute a realistic defensive plan. Once successfully executed, forces can then transfer back to the offense and regain the initiative.

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