COMBINING ARMS IN THE CLOSE FIGHT

NATIONAL TRAINING CENTER

OPERATIONS GROUP

U.S.ARMY

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Center for Army Lessons Learned

Operations Group, National Training Center (NTC) created this publication to assist units in combining arms to win on the battlefield and is organized into three sections. Section I offers three foundational concepts and 18 critical tactics, techniques, and procedures (TTPs) that offer "a way" to think about how to combine arms. Section II focuses on brigade combat team (BCT) sustainment and describes why and how units should design their concept of support and logistics architecture. And section III offers a series of hard problems for units to consider as they train for large-scale combat operations (LSCO).

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Foreword

Over four decades and 400 rotations, the National Training Center (NTC) has prepared the Army's tactical units for combat. Throughout these years and all these rotations, units have consistently focused on a task that is easy to understand in theory, but hard to execute in practice: combining arms in the close fight. Forcing the enemy to fight in multiple directions, against multiple forms of contact, usually allows formations to win. This only happens when units do the range of tasks that get them in position to converge combat power at the time and place of the commander's choosing. Simply put, combining arms is at the heart of good fighting and it is hard to do.

We intend for this book to be practical. It builds upon NTC Operations Group's May 2021 publication, *Mastering the Fundamentals: For BCT and Below Formations*. It seeks to move beyond describing problems, focusing instead on concrete things units must do to combine arms. We take doctrine as our starting point — which rightly focuses on what must be done during operations — and move forward to offer ways to think about how to fight. Our source material for these recommendations is the hard work of nine brigade combat teams (BCTs) during rotations spanning from July 2021 through May 2022. It has been our privilege to train with and learn from these fine fighting formations. We seek to pass on to the Army what they — and what we in NTC Operations Group — have learned about what it takes to combine arms in the close fight.

This publication is organized into three sections. Section I offers 3 foundational concepts and 18 critical tactics, techniques, and procedures (TTPs) that offer "a way" to think about how to combine arms. Section II focuses on BCT sustainment and describes why and how units should design their concept of support and logistics architecture. Section III offers a series of hard problems for units to consider as they train for large-scale combat operations (LSCO).

We hope this book spurs more thinking about fighting across our Army's tactical formations. We believe that these TTPs can drive unit training strategies in our brigades (BDEs), battalions (BNs), companies, and platoons. With time always at a premium, units have to make hard choices on what to train. Making the right choices is critical if we expect our formations to combine arms in the close fight to win the next war. As always, if you or any member of your team requires assistance from NTC Operations Group, please do not hesitate to ask.

COL Chad C. Chalfont
Outlaw 01
Operations Group
The National Training Center and Fort Irwin
22 June 2022

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SECTION I

CHAPTER 1

"A Way" to Think About How to Combine Arms in the Close Fight

(OPERATIONS GROUP, NATIONAL TRAINING CENTER)

Army doctrine rightly emphasizes the requirement to combine arms. While doctrine describes what combining arms looks like, it does not always describe what leaders must actually do to synchronize all elements of combat power at the time and place of the commander's choosing. Put another way, Army doctrine is long on the "what" and short on the "how" for combining arms—specifically during tactical operations in armed conflict. Leveraging observed trends and lessons learned during recent National Training Center (NTC) rotations, this section offers "a way" to think about how to combine arms in the close fight. It outlines 3 foundational concepts and 18 critical tactics, techniques, and procedures (TTPs) that can serve as an anchoring point for unit training strategies at the brigade combat team (BCT)-level and below.

The metaphor of a house in Figure 1-1, organizes the TTPs required to combine arms. Combining arms requires an effective command and control (C2) system (electrical system), sustainment system (plumbing), fire support system (frame), and maneuver grounded in tempo and suppression (roof). These four systems rely on a foundation of an understanding of time, commanders' dialogue, and rehearsals that build shared understanding.

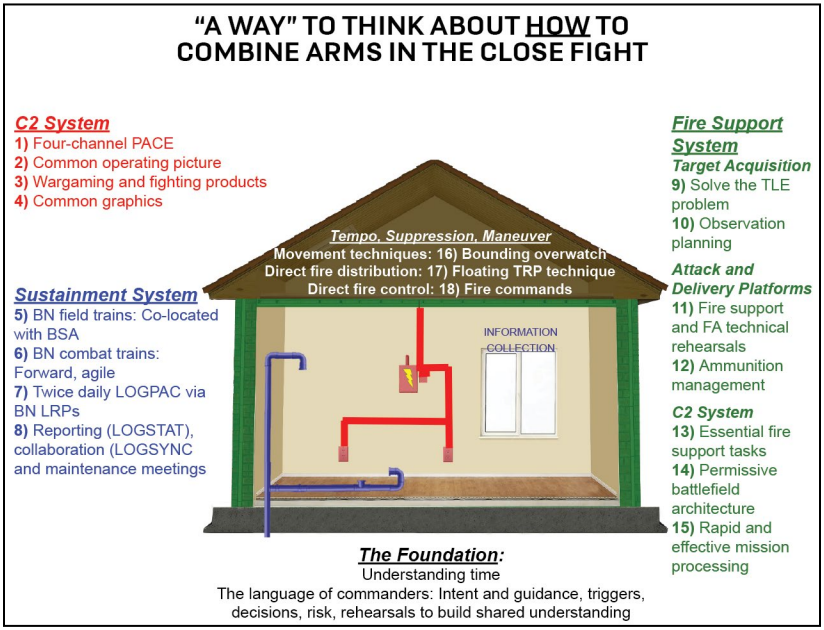

Figure 1-1. The House (Operations Group, National Training Center)[1]

THE FOUNDATION

Understanding Time

Time lies at the heart of all military operations. Even though time is a critical mission variable (mission, enemy, terrain and weather, troops and support available, time available, and civilian considerations [METT-TC] (FM 5-0, *Planning and Orders Production*, 16 May 2022]),[2] it often ranks as the least discussed among commanders and their staffs. Yet, understanding time—and figuring out how long things take—is essential to converging combat power at the time and place of the commander's choosing. Put another way, without an understanding of time, combining arms only happens by good fortune or accident—if it happens at all.

An understanding of time starts with recording how long things take. Commanders must collect time-related data throughout all aspects of unit training. Commanders should emerge from collective training events with an appreciation for answers to questions such as:

- How long does it take for a platoon, company, or battalion (BN) to start moving upon receipt of a vocal (frequency modulated [FM]) order?
- How long does it take for the mortar platoon or firing battery to occupy a firing point or area and be in position, ready to fire?
- How long does it take for the mortar platoon or firing battery to fire from the moment the forward observer calls for fire when the firing unit is laid on the pre-planned target?
- How long does it take for the mortar platoon or firing battery to fire from the moment the forward observer calls for fire for a dynamic target that has not been forecast?
- How long does it take for an engineer platoon or company to reposition from its call forward area or assault position to the point of breach?
- How long does it take for an engineer platoon or company to reduce a 100-meter mine-wire obstacle? A 200-meter mine-wire obstacle? A tank ditch?
- How long does it take a platoon or company to move one kilometer (km) when not in contact with the enemy? When in contact with the enemy?
- How long does it take for a company to complete ammunition emergency resupply via the BN combat trains?
- How long do these tasks take under varying conditions (day, night, mission-oriented protective posture [MOPP] 4, etc.)?

The point of this is not to turn military operations into a mathematical equation. Instead, commanders should arm themselves with rough approximations of how long things take. Then, when informed by data collected during their own units' training, commanders can fight with a knowledge base that allows them to direct operations, account for time, and combine arms.

Examples of how long various tasks should take.

Example One: When not in contact with the enemy, mounted companies move one km every three minutes, attack aviation moves three km every one minute, and dismounted infantry in restricted terrain moves one km every hour.

Example Two: In five minutes, a commander is going to issue an FM order for A Company to occupy support by fire (SBF) 1. Right now, the commander is going to initiate calls for immediate suppression with both their organic mortar platoon and the field artillery (FA) BN. In the meantime, the commander knows it's going to take A Company about three minutes to start moving. It will then take A Company about 10 minutes to move the two kms from their current position to SBF 1. Because the commander has FA priority of fire, they know it will take about 15 minutes for the battery to fire the dynamic suppression target to enable A Company to occupy its SBF. The commander will bridge the potential gap in suppression with an immediate mortar suppression mission that will take about 10 minutes to initiate.

Example Three: The commander just destroyed the enemy's advance guard and A Company is now amber on M2A3 Bradley 25-millimeter (mm) ammunition. The commander is going to call for emergency resupply now. The commander knows it will take about five minutes for the distribution platoon truck at the combat trains to initiate movement. It will take them another 30 minutes to travel the 5 km to the company trains.

Recording how long tasks take in training drives an understanding of time, enabling commanders to combine arms and direct operations based on the informed application of estimates and experience. Put another way, the art of command must be informed by the science of control. Importantly, this same understanding of time drives rigor in staff planning and preparation.

Recent NTC rotations show that brigade (BDE) and BN staffs do not integrate an understanding of time into their running estimates, wargaming, or fighting products. Even when doctrine and unit standard operating procedures (SOPs) contain a list of time-related planning factors, staffs rarely integrate them into their key activities. Combining arms in the close fight demands that staff leverage the science of control (including a firm understanding of how long things take) to enable commanders to exercise initiative. The trick is to focus staff analysis on time's operational and mission variables without becoming paralyzed by the thousands of possible time-related data points that might govern a military operation.

Staffs should focus on two areas, even when planning and preparing in a time-constrained environment: course of action (COA) analysis (wargaming), and rehearsals. First, staffs should wargame their unit's decision point (DP), accounting for how long it will take to accomplish each step of that discrete part of the operation. By leveraging the wargame to visualize two levels down and step-by-step, the staff can methodically simulate what needs to happen by time, in sequence, and through simultaneity to synchronize all available combat power at the DP. In addition, the exercise of a time-governed wargame for the DP increases the probability of building a plan that will actually combine arms during the fight. A wargame that accounts for time also enables the staff to accomplish a second, critical focus area: producing fighting products that are informed by time.

Staff must develop fighting products that account for time. The synchronization and execution matrix is usually the best place to start. Most units build their matrix with time expressed in relation to "H-hour" on the X-axis and subordinate units and their capabilities on the Y-axis. This technique is effective because it depicts each cell entry in the matrix as the quotient of unit action (or capability) over time. Unfortunately, once operations commence, enemy and friendly actions rarely unfold as forecast by the staff that built the matrix. Even when operations occur as planned but out of projected sequence, the matrix becomes unwieldy to continue synchronizing the operation. Staff should then enhance their synchronization and execution matrix by adding a parenthetical time estimate for critical actions (and matrix cell entries). Ideally, the staff should derive these parenthetical time notations within the matrix from work done during COA development and wargaming. This technique drives the development of fighting products that allow commanders and command posts ready access to those time estimates required to synchronize the application of combat power. In these ways, (time-based wargaming of the DP resulting in time-based anchors embedded in the synchronization and execution matrix) staffs will be doing their part to generate a better understanding of how time will shape operations and better inform the commander's decision making.

Finally, commanders must give time its pride of place in commanders' dialogue and rehearsals. Too often, BDE and BN commanders cross the line of departure with unspoken and divergent views on how long things will take. A remedy to this problem is to always ask this question, "How long do you think that will take?" This technique carries great power on several levels. First, this question introduces greater rigor in commanders' dialogue, driving better visualization and shared understanding. Second, when leaders know that their commander will always ask them, "How long do you think that will take?" they are incentivized to do the thinking and work required to answer this question. The presence of time in commanders' dialogue also drives staff analysis so that the subordinate commander is prepared to offer a time-informed estimate of the situation. Put another way, the expectation of the question, "How long do you think that will take?" will drive bottom-up, time-informed refinements to the plan. This enables commanders to fight with a better balance between the art of command and science of control.

Establishing time as an anchor for rehearsals creates opportunities to do the following:

- Align expectations for the operation tempo (OPTEMPO).
- Identify and resolve instances of over-commitment or overlaps in the allocation of finite resources and capabilities.
- Confirm triggers that drive the achievement of mutual support.
- Resolve conflicts and gaps that inhibit the massing of combat power against the enemy.

Moreover, asking "How long do you think that will take?" aligns commanders at echelon in a similar conception of time, tempo, and the delivery of key capabilities. Ultimately, grounding commanders' dialogue and rehearsals in time reinforces leaders' initiative so that they can fight better.

Understanding time is an essential component to the foundation of combining arms in the close fight. Perhaps it starts with the mechanical recording of time-based data throughout unit training. Staffs play an important role in building a better understanding of time—particularly through the wargame and time-based fighting products. Without question, all commanders must integrate time into their dialogue and rehearsals to drive better visualization and shared understanding. In the end, units must understand how time governs their ability to combine arms. These efforts enable commanders to understand, visualize, describe, and direct operations—rather than grasping at the enemy, blind to an understanding of time.

The Language of Commanders – Intent, Guidance, Triggers, Decisions, Risk

Army doctrine places commanders at the center of mission command and the C2 of Army forces. Recent NTC rotations show that commanders at all echelons are usually well-prepared to issue their intent and guidance before, during, and after operations. However, these same commanders often miss opportunities to share their understanding of how they will sequence their operations, the conditions required to perform critical events during the mission, and their concerns about their own unit's vulnerabilities. In the context of tactical operations, the language of commanders is essential to formations seeking to combine arms in the close fight. Commanders must keep triggers, decisions, and risks at the forefront of commanders' dialogue before, during, and after the fight.

A shared understanding of triggers and decisions between commanders at echelon is essential to combining arms. While staffs usually leverage orders and fighting products to communicate triggers and decisions to subordinate commands, the reverse rarely happens. When subordinate commanders share their decisions and triggers with their higher headquarters and commander, a fuller picture of the operation emerges. For example, a BDE commander would want to know the BN commander's trigger for the commitment of the breach force because it drives mutual understanding of the expected duration of the FA BN's commitment to executing suppression and obscuration fires. A BN commander would want to know the company commander's trigger to displace platoons for ammunition resupply because it drives a better understanding of how and where the BN combat trains need to be postured to perform the projected resupply mission. A BDE commander would want to know the BN commander's criteria for committing their tank platoon reserve to prevent penetration of their defense. This decision would inform when and where the BDE commander might commit their reserve. The point here is that the higher headquarters commander is responsible for creating space for subordinate commanders to share their triggers and decisions during commanders' dialogue, update briefs, and rehearsals. When the commander leverages the language of commanders and creates an expectation that the subordinate commanders' triggers and decisions are a requirement for dialogue, the entire team (at echelon) gains a better understanding of when, where, and how formations will synchronize combat power and combine arms.

Risk is an equally important component of the language of commanders. Commanders are conditioned to solve their problems at their level and are often reluctant to communicate their challenges and risks to the higher command. This trend must change. Commanders must create the space and expectation that their subordinates will communicate their risks and the associated measures to mitigate them. When commanders do this, they build mutual trust. Also, discussing risk during back briefs, commander's update briefs, and rehearsals improves understanding of the vulnerabilities the entire formation will face during operations. Further, bottom-up communication on risk creates opportunities in which the higher headquarters can either assume that risk on behalf of the subordinate commander or dedicate resources toward mitigating the concern. Finally, units must create the conditions in which discussing risk becomes a habit—allowing for sharing efforts to resolve issues, assume prudent risk, and set conditions for combining arms in the close fight.

Rehearsals to Build Shared Situational Understanding

Recent NTC rotations show that units recognize the importance of rehearsals and invest time in performing them—after all, rehearsals give units a free repetition of how the operation might unfold. Unfortunately, unit rehearsals often do not progress beyond a staff-centric back brief of the baseline plan. Units can sharpen this key preparation activity by placing time, contingencies, and commanders at the center of their rehearsals. Doing so enables the unit to achieve better situational understanding, increasing the chances that they will combine arms in the close fight.

Units should structure their rehearsals to maintain time as a constant thread throughout the rehearsal. An excellent start is to rehearse the operation's DP as a stand-alone, critical event. Just as a good staff wargame of the DP records the application of combat power by time, in sequence, and through simultaneity; rehearsing the DP in this same manner drives shared understanding about what needs to happen to combine arms at the most critical point of the operation. Units should leverage their fighting products to guide the rehearsal. In fact, the only script that any rehearsal needs is the unit's synchronization and execution matrix or execution checklist. This is because driving the rehearsal using the matrix or checklist accounts for time, validates the fighting product, and builds a shared understanding of the plan. When commanders fight off the execution matrix during the rehearsal, they turn the staff product into an actual fighting product. Throughout the rehearsal, commanders should ask and answer the question, "How long do you think that will take?" to drive a shared understanding of tempo; allocation of resources and combat power; and triggers.

Units must structure their rehearsals in ways that allow leaders to visualize how they will execute actions across the depth of the battlespace (deep, close, and rear). For example, a rehearsal might transition between the deep and close fight to show how the BDE's employment of howitzer fire support against enemy air defense and fires platforms will force BNs to rely on their mortars during their approach march to the expected line of contact. Ultimately, keeping time at the heart of the rehearsal's structure drives the shared understanding that enables formations to combine arms in the close fight.

Unit rehearsals can fall into the trap of walking through how they wish the operation might unfold in a perfect world (according to plan)—rather than thinking about what might actually happen. Avoiding this requires units to rehearse in ways that allow them to work through friction points introduced by both the enemy and their own actions. First, units must weave an uncooperative enemy into the fabric of their rehearsal. Many units only discuss enemy actions at the start of the rehearsal or at the start of each rehearsal turn. This alone is ineffective. In addition to establishing the enemy actions at the start of the rehearsal, units should consider using the enemy inject technique and action/reaction/counteraction technique to ensure the enemy maintains a constant presence during the rehearsal. Units must also account for mission friction and requirements for combining arms. Listed below are several techniques that can drive this aspect of good rehearsals:

- **Inject friction.** For example, the executive officer (XO) announces that the breach force is delayed in moving to the point of breach. Additional ammunition and firing unit survivability moves are required to sustain obscuration.
- **Address commanders' risk.** For example, the BDE commander pauses the rehearsal and asks the main effort BN commander to lay out their greatest risk at that point in the operation and how it will be mitigated.
- **Practice cross talk.** For example, when rehearsing a point in the operation where there are converging BNs, the BDE commander extends the rehearsal and directs the BN commanders to use simulated FM transmissions to walk through how they will deconflict fires and maneuver.

- **Practice combining arms.** Avoid the tendency to talk through the actions of maneuver units only. BN commanders should talk through their actions during a critical event by discussing how their reconnaissance actions will drive fire support (FS) tasks that will in turn enable the maneuver of their subordinate companies and other formations. For example, the BN commander might describe the sequence of actions of suppress, obscure, secure, reduce, and assault (SOSRA) for a breach. This would require the commander to discuss what it will take to achieve suppression and obscuration (direct and indirect fires) and then move on to describe the mechanics of the obstacle reduction effort. This technique ensures that the rehearsal is not limited to a maneuver-only rehearsal.

- **Rehearse the execution of essential fire support tasks (EFSTs).** Doctrine defines EFSTs as being so important that if they are not accomplished, they will drive a change to the scheme of maneuver. Accordingly, during the combined arms rehearsal (CAR), units should walk through the specifics of target, trigger, location, observer, delivery platform, attack guidance, and communications (TTLODAC) so everyone understands each EFST.

- **Account for sustainment requirements.** Units must drive discussions on the operation's sustainment requirements, challenges, and the location of critical commodities and sustainment nodes. Here, the technique of describing critical actions related to "35MM" (Class [CL] III [petroleum, oil, lubricants], CL V [ammunition], maintenance, and medical) can succinctly drive shared understanding of sustainment considerations impacting the operation.

- **Rehearse C2.** Units must briefly discuss the movement and positioning of retransmissions, command posts, and the locations of leaders on the battlefield. Commanders should also outline concerns and risks related to communications. For example, BN commanders should share their projected periods when their command posts are repositioning so that it will be understood when they will not be able to leverage the upper tactical internet (i.e., Warfighting Information Network-Tactical [WIN-T]).

Ultimately, units must structure their rehearsals using techniques that drive an understanding of contingencies (enemy and friendly) and how they will combine arms. Units cannot just rehearse their plan in the way they hope it will unfold. Instead, they must rehearse what might actually happen, accounting for both enemy and friction as they seek to combine arms in the close fight.

Units must place commanders at the center of their rehearsals. Commanders drive every aspect of the operations process, including playing a prominent role in the linchpin of all preparation activities: rehearsals. While it may be necessary for the staff to consume 10 to 15 minutes at the start of the rehearsal to establish context and orient leaders to the conduct of the rehearsal, units must then relinquish control to the commanders and allow them to drive the rehearsal. This is necessary because commanders have the responsibility for the operation. Commanders also have the judgment and experience to assess the plan as it is being rehearsed and enact changes to ensure mission accomplishment. Subordinate commanders cannot be mere silent partners to the rehearsal.

Moreover, placing commanders at the center of the rehearsal most closely approximates the actual conduct of the operation. Rehearsals allow commanders to practice fighting their plan against a determined enemy with no risk. They should not hesitate to stop the rehearsal, adjust, and redo actions to drive maximum preparedness for the fight. Ultimately, units rehearse better when commanders personally drive this key preparation activity.

Units that rehearse well at echelon put their formations in a better position to succeed. Good rehearsals allow timing its deserved place of prominence. Units should also ensure that their approach accounts for contingencies so that the rehearsal does not devolve into a staff-centric back brief. Commanders must be at the center of the rehearsal, driving action to enable their formations to combine arms in the close fight.

THE C2 SYSTEM—ELECTRICAL SYSTEM

The Four-Channel PACE Plan

Combining arms requires real-time coordination across a range of units, leaders, and staff—before, during, and after the fight. The intensity of large-scale combat operations (LSCO) requires a communications structure that enables units to prioritize and categorize a high volume of reporting and information. Heavy reliance on one channel (e.g., the command net) creates excessive net congestion and prevents coordination. Units must develop procedures that drive reporting and information sharing at the right times and in the right places.

While the concept of a PACE is commonly understood in the Army, it typically centers on creating redundancy in one channel of communication (e.g., primary: FM; alternate: joint battle command platform (JBCP); contingency: WIN-T; emergency: tactical satellite [TACSAT]). Army Techniques Publication (ATP) 6-0.5, *Command Post Organization and Operations,* 1 March 2017,[3] advises units to create a PACE by warfighting function (WfF). Unfortunately, this technique tends to limit information in different functional cells and carries the risk that critical information will not be shared across units, integrating cells (current operations [CUOPs], future operations [FUOPs], plans), and command posts. For example, does the answer to the commander's priority intelligence requirements (PIR) belong in the movement and maneuver or intelligence PACE?

The four-channel PACE technique leverages the same network structure that BNs have used for decades, where four nets—or channels—have remained constant. Those four channels are as follows:

1. **Command Channel.** This is the commanders' channel. This is the channel where commanders collaborate to drive operations. It exists to allow the unit commander to give direction (orders and instructions) and receive in-the-fight reports from subordinate units. Reserve this channel for critical information and in-the-fight crosstalk among subordinate units. While this channel is the one that is most often monitored, units must enforce procedures to prevent excessive net congestion. Commanders, XOs, and S-3s (training and operations) operate on the command channel at the BDE level. Commanders, BN XOs, BN S-3s, and company XOs operate on the command channel at the BN level. Anyone with critical information (e.g., commander's critical information requirements [CCIR]) should disseminate it on the command channel.

2. **Operations and Intelligence (O&I) Channel.** This is the staffs' channel. This is the channel where staffs collaborate to coordinate operations, synchronize combat power, and refine staff estimates. This channel houses routine information. It is critical for building situational understanding without congesting the command channel. Use this channel to drive WfF synchronization and to enable effective transitions. Staff officers (BDE and BN) operate on the O&I channel at the BDE level. Command posts (BN and company) operate on the O&I channel at the BN level.

3. **Fires Channel.** This is the fire support system's channel. This is the channel where FA leaders, fire support officers, and mortar platoons collaborate to provide timely and accurate predicted fires. The fires channel links sensors to shooters. Use this channel throughout all phases of the operations process to drive coordination, rehearsals, and execution of fire support. The BDE fire support element (FSE), BN FSEs, task force (TF) fire support officers (FSOs), and the FA BN operate on the fires channel at BDE level. The BN FSE, company FSOs, and mortar platoon operate on the fires channel at the BN level.

4. **Administration and Logistics (A&L) Channel.** This is the sustainment system's channel. This is the channel where units coordinate all aspects of sustainment before, during, and after the fight. Use this channel to drive tactical resupply and casualty evacuation (CASEVAC) operations. Units collaborate on this channel for logistics reporting (i.e., logistics status [LOGSTATs]) and maintenance operations. The A&L channel enables combat power regeneration. Command sergeants major (CSMs), XOs, S-1s, S-4s, medical support leaders, and maintenance leaders operate on the A&L channel at the BDE level. CSMs, first sergeants (1SG), combat trains command posts (CTCPs), field trains command posts (FTCPs), medical support leaders, and maintenance leaders operate on the A&L channel at the BN level.

Units implement the four-channel PACE by establishing redundant communications within each channel (primary, alternate, contingency, emergency), and establishing the procedures that drive communications (direction, reporting, and crosstalk) within each channel. The four-channel PACE also enables units to perform their battle rhythm with discipline. Unit SOPs must outline what type of information belongs in each channel, the frequency of reporting and collaboration within each channel, and who operates on each channel. Finally, units must make decisions on which nets will receive dedicated retransmissions assets, in accordance with the commander's priorities. The following tables (Tables 1-1 and 1-2) outline "a way" for creating a four-channel PACE at the BDE and BN levels.

Table 1-1. Example Battalion to Brigade Four-Channel Pace (Operations Group, National Training Center)[4]

	Command	O&I	Fires	A&L
Primary	FM	WIN-T	WIN-T	JBC-P
Alternate	JBC-P	JBC-P	FM - Digital	VSAT
Contingency	WIN-T	FM	FM - Voice	WIN-T
Emergency	HF	TACSAT	HF	HF

Table 1-2. Example Company to Battalion Four-Channel Pace (Operations Group, National Training Center)[5]

	Command	O&I	Fires	A&L
Primary	FM	JBC-P	FM - Digital	FM
Alternate	JBC-P	FM	FM - Voice	JBC-P
Contingency	HF	Runner	JBC-P	Runner
Emergency	Runner	----------	Runner	----------

Finally, units must understand that every element on the battlefield has the responsibility to maintain communications with their higher headquarters, not the other way around. Units must invest in the supply readiness, maintenance readiness, and training readiness of their communications equipment. Ultimately, strong communications readiness brings the four-channel PACE to life, thus enabling formations to combine arms in the close fight.

The Common Operating Picture

Per Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, 31 July 2019,[6] the common operating picture (COP) is a display of relevant information within a commander's area of interest tailored to the user's requirements and based on common data and information shared by more than one command. The intensity and uncertainty inherent in LSCO make it challenging for units at echelon to build and maintain the COP. Still, an effective COP enables units to maintain situational understanding, decide faster than the enemy, and drive operations. Accordingly, the COP should be considered more than just a physical display of information. An effective COP captures three sets of interrelated information, listed below:

1. **Locations (where things are):** friendly locations, enemy locations, and graphic control measures (GCMs).

2. **Context (what things mean):** direction (orders and instructions), crosstalk, and reporting.

3. **Focus (why things matter):** decisions and transitions.

Units must establish systems and procedures for each component of the COP. For example, units must ensure their command posts and staff follows established procedures to develop, refine, and disseminate common graphics. Battle captains and battle noncommissioned officers (NCOs) must have a system that routinely updates friendly and enemy locations on the COP. Units must complete reporting and crosstalk rooted in procedures that put communications in the right channel, at the right time, and in concise formats. Command posts must develop systems that drive decisions and transitions.

They must also ensure the alignment of digital and analog COPs.

Ultimately, a well-developed and accurate COP allows leaders and command posts to maintain accurate running estimates, use them to drive the operations process, and inform commander decision making. The procedures for developing and disseminating the COP must have pride of place in unit SOPs. These things do not happen by accident. Units must develop clear procedures for maintaining the COP, placing NCOs at the heart of implementing these procedures, and then relentlessly drilling these same procedures in training. Having the entire staff execute a seven-minute drill (a drill in which staff members share their running estimates) is an excellent technique to enable the battle NCO to update and confirm the COP. Ultimately, the COP drives a common understanding of the situation among units, leaders, and command posts. The COP enables formations to combine arms in the close fight.

Wargaming to Produce Fighting Products

Field Manual (FM) 5-0, *Planning and Orders Production,* 16 May 2022,[7] describes wargaming as a process to visualize the flow of an operation according to the mission variables (i.e., METT-TC). It allows staffs to synchronize the application of combat power (often organized by WfF) and evaluate the advantages and disadvantages of each COA. Wargaming is the linchpin planning activity that drives a unit's ability to combine arms in the close fight.

Army doctrine outlines a range of wargaming techniques and unit planning SOPs that typically reflect this doctrine. However, staffs often miss opportunities to leverage each turn of the wargame to generate key insights on how the unit will combine arms during the operation and how the fight might unfold. To resolve this, units should focus wargaming so that it yields those outcomes that will drive the synchronization of combat power in time and space; resolve coordination problems; lay out the implications of key decisions; and identify and mitigate key risks. A concrete, practical way to think about this is that a commander will know that their staff is wargaming effectively when each wargame turn generates the following:

- New tasks to subordinate units (including task organization changes)
- New GCMs
- Triggers
- Decisions
- Risk

Good wargaming drives the creation of fighting products. Fighting products are quick-reference materials that commanders and staffs leverage in the fight to synchronize combat power, synchronize operations, and accomplish the mission. Fighting products are written documents that depict a synthesis of commander and staff estimates. They are the product of commander and staff analysis and integrating processes (intelligence preparation of the battlefield [IPB], military decisionmaking process [MDMP], rapid decision-making process, targeting process, and risk management process). They distill the tasks and information in written and verbal orders and instructions. Staff bandwidth varies at echelon. The Army should expect fewer fighting products (and less fidelity) at the BN level versus the BDE level. The following list of fighting products offer best practices observed during recent NTC rotations:

Battalion Fighting Products

1. Combat power tracker (reflects task organization per Annex A).

2. Consolidated graphics.

    a. Operational graphics.

    b. Enemy situation (situation template [SITEMP] and event template).

    c. Planned indirect fire targets and fire support overlay.

    d. Airspace control order (ACO) and airspace C2 overlay.

3. Execution matrix, synchronization matrix, and execution checklist.

    a. Outlines unit tasks and actions over time and events.

    b. Accounts for unit capabilities and combat power. For example:

        i. Information collection tasks and actions.

        ii. Fire support tasks and actions.

        iii. Maneuver tasks and actions.

        iv. Protection, logistics, and C2 actions.

        v. WfF.

4. Target list worksheet.

5. Decision support matrix (DSM) and decision support template (DST).

    a. CCIR (PIR plus friendly forces information requirements [FFIR]).

Brigade-Level Fighting Products

1. Task organization plus combat power tracker.

2. Enemy SITEMP and event template.

3. Common operational graphics.

4. Execution matrix and synchronization matrix (SYNCHMAT) that outlines unit tasks and actions over time and events. Accounts for unit capabilities and combat power. For example:

    a. Information collection tasks and actions.

    b. Fire support tasks and actions.

    c. Maneuver tasks and actions.

    d. Protection, logistics, and C2 actions.

    e. WfF.

5. Information collection synchronization matrix (ICSM).

6. Target list worksheet (TLWS), fire support execution matrix (FSEM), and target synchronization matrix (TSM) that include:

    a. High payoff target list (HPTL).

    b. Attack guidance matrix (AGM).

    c. Target selection standards (TSS).

7. DSM and DST.

8. CCIR (PIR plus FFIR).

9. ACO and airspace C2 overlay.

10. Logistics synchronization matrix.

Common Operational Graphics

Common operational graphics drive operations. The graphics allow units to synchronize combat power in time and space; deconflict unit positioning and airspace; and mitigate the risks of converging forces and their associated fires. Common graphics also allow leaders to issue orders and instructions rapidly and achieve quicker visualization and understanding of the situation, enabling leaders to decide and act faster than the enemy. Common operational graphics are at the heart of combining arms in the close fight.

When producing graphics, commanders and staffs must account for the fact that these symbols must make it onto their subordinate leaders' map boards. More graphics usually does not equal better graphics. Simple and clear boundaries, phase lines (PLs), and checkpoints (that leaders can link to distinguishable terrain features on the ground) are usually enough to drive operations. Moreover, units must establish the procedures to disseminate (top-down) and refine (bottom-up) graphics. Leaders must create and enforce unit SOPs that establish the step-by-step process to build and disseminate common graphics. Command posts usually own responsibility for disseminating graphics. Subordinate units should leverage their liaison officers (LNOs) to contribute to this effort. Finally, pre-combat checks and inspections offer the best technique to ensure formations (and command posts) cross the line of departure with common operational graphics. For example, company commanders should always include a check on graphics as one of the elements of their pre-combat inspection. The BN operations sergeant major should do the same for the BN main command post (MCP).

SUSTAINMENT SYSTEM—THE PLUMBING

BN Field Trains: Co-located in the Brigade Support Area

The purpose of the BN field trains is to receive, configure, and distribute all classes of supplies for the BN. In most cases, the best position for the field trains (with the BN distribution platoon) is in the brigade support area (BSA) – if only because that is where the BN field trains draw all supplies. BN field trains positioned in the BSA can do the following:

- More easily draw bulk fuel and water.
- Have more time to configure all classes of supply into company logistics packages (LOGPACs).
- Be less vulnerable to enemy attack (as they are farther behind the forward line of troops).

This postures the BN to execute twice-daily LOGPACs for routine resupply operations.

Co-locating all BN field trains in the BSA also yields flexibility across the entire BDE. First, the Alpha Distribution Company can more easily empty its stores into BN assets and then posture to receive the division LOGPAC. This increases the BDE commander's tactical reach, given that the Alpha Distribution Company stores the third day of supply (DOS) for the entire BDE. Second, this configuration allows the brigade support battalion (BSB) commander to task under-used haul assets in one BN to sustain an adjacent BN. For example, if a combined arms battalion (CAB) is consolidating and reorganizing for the next 12 hours, the BSB might choose to use that BN's palletized load system (PLS) trucks to thicken the LOGPAC of the FA BN that is consuming a high volume of ammunition. Finally, co-locating BN field trains in the BSA allows sustainment units to better anticipate and coordinate for emerging requirements. For example, the BSB commander and staff often learn of BDE-level task organization changes well before any BN can publish its own order. When forward support company (FSC) commanders and their field trains are in the BSA, the BSB commander can gather leaders and rapidly issue information, orders, and instructions. In these ways, co-locating all field trains at the BSA enables units to flatten their organizations while meeting each BN's discrete sustainment requirements.

Combat Trains: Forward and Agile

The purpose of the BN combat trains is to regenerate combat power. BN combat trains do this through their aid stations, unit maintenance collection point (UMCP), and emergency resupply stocks. However, the intensity and chaotic character of LSCO makes the task of regenerating combat power extremely challenging. Performing triage, returning previously wounded Soldiers to the fight, and repairing battle-damaged vehicles—while in contact with the enemy—requires strong leadership. Therefore, the headquarters and headquarters company (HHC) commander, HHC 1SG, and HHC XO should lead the BN combat trains.

The BN combat trains must be agile and positioned forward if units expect it to regenerate combat power during the fight. First, when BN aid stations (main aid station and forward aid station) are positioned forward, it reduces travel time for companies as they evacuate casualties from the point of injury. It also eases the mission of returning treated Soldiers to forward units during the fight. Second, the unit maintenance collection point must be positioned forward to reduce recovery mission times. In cases where a BN experiences high battle losses, units should consider splitting their maintenance efforts into two separate UMCPs. One UMCP positions forward, focusing on battlefield damage assessment and repair (BDAR); the second UMCP remains positioned toward the rear, focusing on complex or longer job orders and rearward evacuation of irreparable vehicles. Finally, the BN combat trains must maintain a forward-positioned emergency resupply capability. This capability typically consists of water (for chemical decontamination), fuel, and ammunition that the BN commander can quickly leverage to extend the unit's tactical reach. BNs must consider the timings and triggers to reposition the combat trains so that they can be best postured to enable the fight. Units should determine these timings and triggers during the wargame, establish them in fighting products, and validate shared understanding during rehearsals.

Units should consider maintaining a split of 20 percent of the distribution platoon's transportation assets at the combat trains and 80 percent of assets at the field trains. For example, in managing fueler assets, a good standard is to allow the BNs to each position at their combat trains no more than 5,000 gallons via one M978 HEMTT Fueler with one M107 Tank Rack Module (with exceptions, at times, to account for the cavalry squadron's extended lines of communication). Pre-positioning of fuel assets forward requires discipline and controls to ensure empty tankers are returned to the BSA on the next LOGPAC. Also, the commitment of the combat trains' emergency resupply stocks to a company should trigger either, a) an immediate resupply of the combat trains via the BN's field trains or the BSB's distribution company; or b) a larger BN-wide LOGPAC that replenishes the companies and the BN combat trains.

In summary, BNs should be incentivized to maintain agile combat trains and position them forward. This agility and forward positioning ensure proper focus for the BN combat trains, regenerating combat power (casualties; vehicles and equipment; and emergency resupply). Units should not allow their combat trains to become fixed sites or supply depots. The field trains perform the mission of routine resupply—preferably via twice daily LOGPACs using the BN logistics release point (LRP) technique. Leave the challenging task of in-the-fight combat power regeneration where it belongs: with the BN combat trains.

Twice Daily LOGPACs via Battalion LRPs

Performing twice daily LOGPAC operations via a BN LRP is the most effective method to resupply companies and maintain the unit's tactical reach. When BN field trains position in the BSA, they are best postured to configure supplies and load them onto trucks organized by company requirements (company breaks). When the BN field trains organize a LOGPAC into company breaks, the logistics convoy can divide at the LRP and be escorted to resupply each company directly. This simplifies and speeds the resupply mission because there is no need for the LOGPAC to stop at the combat trains. In this way, the BN only needs to synchronize one sustainment loop (BSA to companies) instead of two sustainment loops (BSA to BN and BN to company). It is always easier to synchronize and execute one loop rather than two.

The BN LRP technique is a rolling linkup between the BN's distribution platoon and company leadership (usually the 1SG, sometimes the XO). Unit assessment of the mission variables (i.e., METT-TC) governs site selection and security for the LRP. The BN's sustainment leadership (e.g., BN XO, BN CSM, 1SGs, BN S-4) should leverage the four-channel PACE to link up at the LRP 30 minutes before the distribution platoon's arrival. This ensures all parties are present to receive the LOGPAC and offers opportunities for face-to-face coordination (for example, the BN can perform its sustainment rehearsal at the LRP before the distribution platoon's arrival). When the distribution platoon arrives at the LRP, it should not stop. Instead, unit LRP procedures and signaling should allow for a seamless, rolling linkup between the drivers hauling company breaks and company 1SGs. Company 1SGs move on to resupply their formations under a clear time suspense (usually 90 to 120 minutes). When the company completes its resupply, the company 1SG returns the distribution platoon's assets to the BN LRP. Once all the BN's distribution assets link up at the LRP, the FSC returns these assets to the BSA to prepare for the next LOGPAC. ATP 3-90.5, *Combined Arms Battalion,* 15 July 2021, pages 6 to 14,[8] offers a good example of an LRP order that can drive LRP operations. During recent NTC rotations, units that have used the LRP order technique have had greater success in streamlining LRP operations.

Units should do LOGPACs twice daily and the FSC commander should lead at least one of these logistics convoys every day. The uncertainty of combat operations should incentivize units to keep their companies resupplied to the maximum extent possible; units never know when they might need those last 20 gallons of fuel or additional 20 mortar rounds. Further, on any given day, the enemy could impact the BN LOGPAC. If this were to occur, the twice-daily model shortens the resupply gap to 24 hours versus 48 hours if the unit only did LOGPAC once per day. Finally, requiring the FSC commander to lead at least one LOGPAC per day enables the commander to conduct face-to-face coordination during company resupply and maintain a more accurate commander's estimate. In fact, the FSC commanders' assessment of the enemy threat, routes, driver fatigue, and discipline of supported units at LRP is crucial toward building the brigade support BN commander's broader estimate.

In summary, units that do LOGPACs twice daily via BN LRPs posture themselves to combine arms in the close fight. This approach sets the enduring expectation—both for those delivering supplies and those receiving them—that they will get what they need to fight the enemy and accomplish the mission every 12 hours.

Reporting and Collaboration (Logistics Synchronization, Logistics Status, and Maintenance Meetings)

The unit logistics status (LOGSTAT) report is the mechanism that drives tactical resupply and materiel forecasting. Units must establish SOPs that drive LOGSTAT execution. The unit's four-channel PACE must support the transmission of this report. Failure to complete good LOGSTAT reporting procedures is equivalent to expecting your grocery delivery service to meet your needs even though you never submitted an order. In addition, good LOGSTAT reporting drives sustainment and good sustainment enables units to combine arms in the close fight.

The logistics synchronization meeting (LOGSYNC) and maintenance meeting drive collaboration between staff and they are both required to sustain the fight. The LOGSYNC synchronizes ongoing sustainment operations, aligns resources to meet current requirements, and forecasts demand for FUOPs. Both the LOGSTAT and staff running estimates drive the LOGSYNC and are key inputs to the meeting. The outputs from the LOGSYNC include revised priorities of sustainment; orders and instructions to units; and a refined logistics common operating picture (LOGCOP). The maintenance meeting drives combat power regeneration.

Key inputs to the maintenance meeting include:

- An up-to-date combat power status.
- The equipment status report (ESR).
- Requirements for external assistance.
- An assessment of CL IX parts required for vehicle repairs.

The outputs of the maintenance meeting include:

- Contracts for estimated completion dates (ECDs) for vehicle repairs.
- Decisions on controlled exchanges across units.
- Revised priorities for maintenance.
- Tasks to subordinate units (e.g., vehicle recovery actions).
- Requests for assistance to the higher headquarters.

Given the high tempo of LSCO, units should train as they fight and complete LOGSYNC and maintenance meetings daily. These meetings are essential to operations at both the BDE and BN levels. Therefore, unit SOPs should establish meeting inputs, outputs, and attendance requirements. In addition, unit SOPs should outline options for attendance requirements, with clear decision authorities on when certain leaders can miss meetings. Ultimately, the LOGSYNC and maintenance meetings drive action to maintain supply and maintenance readiness, thus enabling units to combine arms in the close fight.

FIRE SUPPORT SYSTEM—THE FRAME

Solving the Target Location Error Problem

Minimizing target location error (TLE) is essential to combining arms in the close fight. Joint Publication (JP) 3-09, *Joint Fire Support*, 10 April 2019,[9] defines TLE as the difference between the coordinates generated for a target and its actual location. TLE challenges result from poorly maintained target acquisition equipment and inadequate training on this equipment. When trained observers employ fully functioning equipment—including the pocked-sized forward entry device (PFED), lightweight laser designator rangefinder (LLDR), mark VII laser target locator, and vector—they can achieve TLE of less than 10m. In addition, observer equipment drives precision in determining direction, range, and vertical angle/elevation data; all are crucial for transmitting accurate target location for any call for fire.

Observer readiness drives the achievement of good TLE, and it is a function of manning (personnel [P]), equipping (equipment [S]), maintaining (maintenance [R]), and training (T) (AR 220-1, *Army Unit Status Reporting and Force Registration-Consolidated Policies*, 16 August 2022).[10] Units must closely manage their battle rosters for their observer teams in the ways that they manage (and stabilize) vehicle crews. Units must also routinely account for and maintain observer equipment—including components of the end item (COEI), basic issue items (BII), and the additional authorized list (AAL). While weekly command maintenance affords opportunities to maintain supply and maintenance readiness for observer equipment, it is usually not sufficient. For this reason, units with FA observers must invest in an additional weekly training day—best executed as part of the digital sustainment training (DST) program. Units that dedicate one day per week to DST training will be better postured to build and maintain all aspects of observer readiness (P, S, R, T).

Finally, units must integrate observers into all aspects of home station training. While units will almost always integrate observers into company-level and above training, squad and platoon training also offer good opportunities to build observer readiness. The company FSO's participation in the weekly company training meeting is of particular importance. When company fire support teams (FIST) are fully integrated into their companies' training management system, they remain better postured to build observer readiness. Leaders must insist that observers participate in training with all their systems and optics that drive good TLE. The BDE and BN FSOs' oversight of observer readiness is crucial. The BDE and BN FSOs must track both the readiness of their observer teams (P, S, R, T) and their effectiveness during the completion of unit training.

Put simply, good fire support requires good TLE. Units will drive action in solving the TLE problem when they do the following:

- Invest in observer readiness.
- Establish systems that drive the integration of observers into unit training. Combining arms in the close fight depends on this.

Observation Planning

The observation plan drives fire support (FS), enabling units to combine arms in the close fight. ATP 3-09.42, *Fire Support for the Brigade Combat Team*, 1 March 2016[11] notes that observation planning is too important to be left to chance. Units must use a top-down planning approach that directs subordinate units to emplace observers at the right time and right place to enable FS. At the same time, subordinate units should be afforded the latitude for bottom-up refinement of observation tasks within the commander's intent. Ultimately, echelons of command must view the observation plan as a contract, without which good FS is impossible. For example, the BDE's tasks to company FIST must supersede the company commanders' desire to have their FSOs at their sides.

ATP 3-09.42[12] outlines a six-step process for observer planning:

1. **Determine the desired effects of fires.** In the case of the EFST, the desired effect is a component of the commander's guidance.

2. **Determine target observation suitability.** Based upon desired effects, units determine from where the target location can be observed (accounting for line-of-sight analysis and risk estimate distances).

3. **Develop the observation COA.** The unit generates options for positioning observers to achieve effects in time and space. An effective wargame validates that a primary and alternate observer is tasked to support each EFST, with associated GCMs and triggers for occupying observation points.

4. **Task observers and observation points in a top-down observer plan.** The unit operations order (OPORD) must specify observer tasks to subordinate units, particularly for EFSTs. Units must establish redundant communications means for task execution.

5. **Refine and rehearse the observation plan.** FA tactical and technical rehearsals ensure shared understanding of observer responsibilities and offer opportunities for bottom-up refinement to the observer plan. During the CAR, FSOs and commanders should highlight the completion of those observer tasks linked to the commander's EFSTs.

6. **Monitor and adjust observer plan performance.** During the fight, FSOs and command post leaders must track observation point occupation, particularly those linked to the commander's EFSTs. As required, these same leaders must be prepared to re-task other observers and direct the occupation of new observation points to accomplish the commander's intent for FS.

Fire Support and Field Artillery Technical Rehearsals

The FS rehearsal—often conducted at the BDE level as the "information collection-fires rehearsal"—synchronizes all elements of combat power that will be used to complete the FS plan (target acquisition, attack and delivery platforms, and C2 system). The FA technical rehearsal ensures that the FA BN's plan synchronizes tactical fire control, firing unit movements, and sustainment. The technical rehearsal also validates that each element of the sensor-to-shooter engagement chain is prepared to perform the required tasks. These two rehearsals are important because so many things must go right to deliver accurate, predicted fires at the time and place of the commander's choosing.

Units should anchor their FS rehearsal upon the completion of the commander's EFSTs. First, the rehearsal must validate that the information collection and observer plans are sufficient to acquire the targets for each EFST. It confirms responsibility and shared understanding for the TTLODAC associated with each EFST. Third, the rehearsal should ensure that FS actions are synchronized in time and space. Using fighting products during the rehearsal—particularly the FS execution matrix—will drive synchronization in the fight. Finally, the FS rehearsal should address contingencies that account for anticipated friction points with the FS plan. These can include, but are not limited to:

- Use of alternate observers.
- Use of alternate firing units.
- Use of alternate communications.
- Responses to enemy actions.

Techniques for the FS rehearsal are outlined in Chapter 5 of ATP 3-09.42.[13] Units perform FS better when they focus the rehearsal on the commander's EFSTs and their associated TTLODAC, synchronization requirements, and contingencies.

The FA technical rehearsal is embedded in the DNA of FA units, and most firing BNs have excellent SOPs for this critical task. However, recent NTC rotations show that poor time management and the friction of operating at extended distances lead to units failing to perform the technical rehearsal to standard. Units should consider the following imperatives for their technical rehearsals:

- **Prioritize the technical rehearsal.** Establish participation standards and enforce them. Full participation validates that every person in the sensor-to-shooter chain can accomplish their assigned tasks.

- **Manage timelines.** Ensure the timing of the technical rehearsal is nested within the BDE's broader timeline so that units do not have to choose between competing events.
- **Enforce target refinement cutoff times.** This enables version control of the BDE's target list worksheet and ensures that the FA BN and its fire direction center have established both tactical and technical fire direction before the rehearsal begins.
- **Establish the communications architecture.** Establish the FS system's communications architecture before the technical rehearsal begins. The rehearsal should be a validation event – not a troubleshooting exercise. This is the most important aspect of the rehearsal because responsive FS is not possible without effective communications.

Chapter 5 of ATP 3-09.42[14] outlines techniques for the FA technical rehearsal.

Ammunition Management

Fighting in LSCO requires high volumes of FA ammunition. This high volume of fires (coupled with the complexity of shell-fuse combinations associated with delivering accurate, predicted fire) requires the FA BN to establish strong ammunition management techniques and procedures. In addition, combining arms in the close fight depends on good ammunition management as the FA BN prepares and completes the FA support plan.

Good planning drives the establishment of clearly understood ammunition requirements for the commander's intent for FS. The commander's EFSTs drive the creation of the FA support plan, accounting for the required effects and associated attack guidance. Each EFST (and other FS tasks) generates FA tasks with a corresponding set of ammunition requirements. The FA BN staff—particularly the FA BN ammunition officer—must ensure flexibility and redundancy across firing units to accomplish FA tasks. For example, if obscuration is an EFST, the FA BN must ensure that at least two batteries (if not all three) retain sufficient M825A1 shells and mechanical time-super quick fuses to accomplish the essential FA task. Parallel planning with the BDE staff, good staff analysis during the planning process, and the enforcement of target refinement cut-off times all drive precision in determining and meeting ammunition requirements.

The FA BN's tactical and technical rehearsals are the bedrock for mission preparation. Rehearsals must validate that ammunition is on hand at the right place and right time to complete required FA tasks. Recent NTC rotations show that units often miss the opportunity during rehearsals to confirm ammunition requirements, review contingencies impacting the delivery of FS, and walk through the projected resupply missions. If the complexity of FA ammunition management necessitates detailed planning, these same plans must be rehearsed. Here, the FA BN ammunition officer plays a key role in the rehearsal. In short, unit rehearsals must address ammunition management to set conditions for mission completion.

Finally, ammunition management must remain a constant consideration as the FA BN executes the fight. The FA BN MCP must understand what ammunition is readily available for each subordinate battery. Here, the FA BN and battery COP must include ammunition trackers (shells and fuses). Command posts must also have procedures to maintain accuracy of these trackers before, during, and after the fight. Additionally, command posts must maintain understanding of what ammunition is available at both the combat and field trains and what transportation assets are available to move this ammunition. This understanding of what ammunition is where—and who can move it—drives the completion of routine and emergency resupply to both firing units and forward ammunition stocks. All of this requires a strong C2 system enabled by a BN-level four-channel PACE (command, O&I, fires, and A&L).

Essential Fire Support Tasks

FM 3-09, *Fire Support and Field Artillery Operations*, 30 April 2020,[15] defines an EFST as the mechanism to drive the maneuver commander's guidance for fires. Failure to accomplish an EFST may require the commander to alter the tactical or operational plan. Commanders must give clear guidance and establish priorities for what FS must do for each operation. Without question, the commander's EFST is the best way to establish this guidance.

EFSTs alert the FS system to what is important. FS leaders will always anchor the FS plan upon these essential tasks. The owning FS leader (fire support coordinator [FSCOORD] and TF FSO) aligns planning efforts and resources to ensure that observers and firing units are postured to complete EFSTs. Put another way, if the FS system can only accomplish one or two things for a particular operation, it will be doing the commander's EFSTs. Commanders should have a limited number of EFSTs that are proportional to firing assets available. For example, a howitzer BN enables the BDE commander to have one or two EFSTs per phase; a mortar platoon allows the BN commander to have one EFST per phase. The commander can establish an additional EFST when the unit is allocated joint fires assets (e.g., close air support [CAS]).

Commanders should write EFSTs by their own hand because it drives better understanding of their intent for fire support. Commanders express EFSTs according to task, purpose, method, and effect. The following are examples of EFSTs seen in recent NTC rotations (clear EFSTs versus unclear EFSTs):

- Task:
  - Unclear: "Suppress enemy forces."
  - Clear: "Suppress the southern mechanized infantry company (MIC) for 30 minutes."
- Purpose:
  - Unclear: "Provide freedom of maneuver."
  - Clear: "Enable the main effort BN to maneuver to a position of advantage at the mechanized infantry battalion's (MIBN) southern flank."
- Method:
  - Commanders should not write this component of the EFST. Instead, the FSCOORD or FSO should write the EFST's method based upon what the commander establishes for task, purpose, and effect.
  - In this case, a method might include both, a) an M109A7 platoon, one every five minutes (focused on tanks and armored personnel carriers [APCs]); and b) a mortar platoon, one every five minutes (focused on the flank dismounted strong point).
- Effect:
  - Unclear: "Enemy suppressed."
  - Clear: "Southern MIC unable to mass tank, BMP, and dismounted anti-tank guided missile (ATGM) fires against the main effort BN for 30 minutes as it maneuvers to a position of advantage against the MIBN southern flank."

Finally, commanders should demand to know from the FSCOORD and FSO each EFST's TTLODAC. The TTLODAC includes the small details of the EFST established between the commander, FSCOORD, and FSO. Talking through TTLODAC in the CAR is essential because it reinforces understanding of the tasks and coordination required to accomplish each EFST.

Permissive Battlefield Architecture

Combining arms requires units to establish conditions that allow for responsive indirect fires. Good mission planning and unit procedures set these conditions and create a permissive battlefield architecture for fires. Put another way, units should be given incentive to create a default condition where rockets, artillery, and mortars can fire quickly with few constraints.

Creating a permissive battlespace architecture for fires requires the establishment of firm planning principles that guide the COA development and analysis, as well as in-the-fight procedures. The following principles offer "a way" to think about establishing the permissive architecture:

- Establish the coordinating firing line (CFL) and the triggers to change the CFL. The CFL is a permissive fire support coordination measure (FSCM) that allows units to fire beyond the CFL without coordination (ground clearance) so long as the max ordnance remains below the coordinating altitude. The CFL dramatically speeds fire mission processing times.

- Plan no fire areas (NFAs) judiciously and use them sparingly. Using NFAs only when necessary enables greater flexibility in the employment of indirect fires, particularly for missions forward of the CFL.

- Use BN boundaries to enable permissive fires. Clear boundaries between BNs removes any question of who must clear a specific fire mission. This speeds mission processing times because it ensures that only one unit must clear the fire mission.

- Do not establish positioning areas for artillery (PAAs) or mortar firing points (MFPs) within 500m of unit boundaries. Use these same boundaries for rotary wing air routes. When rotary-wing aviation flies over PAAs and MFPs, firing units cannot fire. This principle offers a simple way to deconflict firing units with rotary-wing aviation.

- Develop the attack guidance matrix (AGM) in accordance with the commander's intent for fires. The AGM provides standing guidance for what kind of targets and with which assets the FS system will engage the enemy. The staff should establish the AGM during the planning process and receive the commander's approval for it. In this way, the AGM represents a set of pre-made decisions that enables the immediate execution of fire missions.

- Shoot through unmanned aerial systems (UAS) restricted operating zones (ROZs). Commanders should consider accepting the prudent risk of allowing the indirect fire flight-of-round to travel through a UAS ROZ.

- Perform FSCM checks and meteorological data (MET) distribution on a routine, scheduled basis. ATP 3-09.42 *Fire Support for the BCT* describes how permissive FSCMs allow the maximum portion of the area of operations (AO) to be engaged with the least amount of coordination and clearance. Routine FSCM checks ensure that all FS nodes share the same control measures and prevents situations where FS nodes' boxes have conflicting views on whether they can execute a fire mission. Routine MET distribution ensures that firing units meet a critical element for accurate, predicted fire.
- Leverage Advanced Field Artillery Tactical Data System (AFATDS) and Tactical Airspace Integration Aircraft System (TAIS) to achieve procedural control of rotary wing aviation. Units that leverage Army mission command information systems to deconflict air movements with artillery achieve faster mission processing time. Procedural control pre-clears air movements before the fight and avoids the more cumbersome technique of positive control, in which units must deconflict their air movements and fires during the fight. The ACO is essential to achieving a battlespace architecture that is permissive for fires.

Rapid and Effective Mission Processing

Responsive FS depends on rapid and effective processing of fire missions that originate with target acquisition platforms; progress through FS elements and fire direction centers; and are executed by cannon, mortar, and rocket crews. Units that develop a streamlined C2 system and drive quality training can achieve rapid and effective mission processing, enabling their formations to combine arms in the close fight.

A well-developed and well-trained C2 system (people, processes, network, and command posts) drives rapid and effective mission processing. The following techniques should guide unit C2 system and fire mission processing architecture:

- **Call for fire.** Fire missions are generated through observer calls for fire and radar acquisitions that are sent directly to the BDE or BN fire support elements (FSE). Additional positive identification is not required for targets that meet the criteria established by the high payoff target list (HPTL), attack guidance matrix (AGM), and target selection standards (TSS).
- **Brigade-level mission processing.** Fire missions that are generated by the brigade intelligence support element (BISE) or BDE FSE are processed at the BDE level.

- **Brigade FSE organization and layout.** The BDE MCP must be organized in a way that allows for the co-location of the BDE targeting officer, BDE collection manager, intelligence analyst(s), counterfire cell, airspace management cell, and joint terminal attack controller (JTAC), all within the BDE FSE.
- **Streamline ground clearance.** With proper planning and rehearsals, units achieve ground clearance via one single entity – the owner of the battlespace. Ground clearance should not require action by multiple echelons of command.
- **Establish and delegate authorities.** Units should establish clear authorities to employ indirect fires and these authorities should be delegated to the lowest possible level.
- **Posture firing units.** Good planning and preparation allows FA batteries and mortar platoons to position within range of anticipated targets, to account for FSCMs, and to maintain required ammunition types and quantities.
- **Speed fire mission transmission directly to the firing unit.** The appropriate command post approves the fire mission. Next, the command post's FSE transmits the fire mission directly to the responsible firing unit (i.e., the FA BN or mortar platoon).
- **Decentralized Control (Quick-fire net).** In accordance with FM 3-09 *Fire Support and Field Artillery Operations*, units can expedite fires through decentralized control via a quick-fire net that connects the observer directly to the firing unit (e.g., cavalry squadron FSE to a field artillery battery). With appropriate controls, the quick-fire net can reduce mission processing times.
- **Digital mission processing.** Executing digital fire mission processing improves fire mission processing time while reducing the probabilities of error (e.g., transposing grid coordinate digits for the target location).

Drill and quality practice form the bedrock of unit training, reducing the time it takes to employ indirect fires. Units must complete hundreds of repetitions to achieve mastery and speed in processing fire missions. Investing in this kind of training enables formations to achieve the standards outlined in Training Circular (TC) 3-09.8, *Fire Support and Field Artillery Certification and Qualification,* 30 March 2020, Appendix D, Table D-8:[16]

- Total observer time: 55 seconds
- Tactical fire direction time: 45 seconds
- Technical fire direction time: 1 minute

- Time on guns: 1 minute
- Total standard fire mission processing time: 3 minutes and 40 seconds

TEMPO, SUPPRESSION, AND MANEUVER—THE ROOF

Movement Techniques: Bounding Overwatch

Bounding overwatch is the foundation for effective fighting with direct fires. Use bounding overwatch when in contact with the enemy or when contact is likely or imminent. Bounding overwatch allows one part of a formation to provide overwatching, suppressive fires while another part of the formation advances on the enemy.

This technique enables units to fight better for two reasons:

1. It is easier to scan and maintain orientation when engaging targets from a stationary platform because there is less work to do on a combat vehicle when it is stationary. Crews can devote their full bandwidth toward scanning and engaging targets. This means that stationary teammates will scan better enabling quicker and more effective target engagement.

2. There is a higher probability that the overwatching element will see the bounding element being shot at by the enemy first.

Ultimately, bounding overwatch allows the unit on the move to advance rapidly and securely to a position of advantage.

Units must leverage their understanding of the enemy (usually achieved through reconnaissance) to decide when they will transition between movement techniques (i.e., from traveling/traveling overwatch to bounding overwatch). There are few advantages to using the traveling movement technique and formations when in contact with the enemy. Use bounding overwatch when in contact with the enemy, and make sure the unit's bounds allow elements to fight from the best terrain available. In turn, commanders must leverage their orders, back briefs, and rehearsals to talk through when they will transition from movement (using the traveling or traveling overwatch movement technique) to maneuver (bounding overwatch). All leaders must clearly understand when they are going to transition to bounding overwatch because it puts their formations in the best position to fight the enemy.

Direct Fire Distribution: Floating Target Reference Point Technique

Recent NTC rotations show that companies and platoons often fail to execute direct fire planning, particularly in the offense. Direct fire control and distribution enables units to combine arms because it allows units to maximize lethality and shock effect while avoiding target overkill and ammunition wastage. ATP 3-90.1, *Armor and Mechanized Infantry Company Team*, 27 January 2016,[17] outlines eight principles for direct fire control:

1. Mass the effects of fire.

2. Destroy the greatest threat first.

3. Avoid target overkill.

4. Employ the best weapon for specific target.

5. Minimize exposure.

6. Plan and implement fratricide avoidance measures.

7. Plan for limited visibility conditions.

8. Plan for degraded capabilities.

The floating target reference point (TRP) technique is a simple and effective way to drive direct fire distribution, particularly in the offense. For a company employing three platoons, the commander designates four terrain-based TRPs (always labeled TRPs 1, 2, 3, and 4) and assigns sectors of fire (e.g., 1st platoon TRPs 1-2, 2nd platoon TRPs 2-3, and 3rd platoon TRPs 3-4). As the company continues its advance, the formation "floats" the TRPs forward, re-designating the same TRP numbers to new terrain features and reassigning platoon sectors of fire. In this way, the company maintains a common frame of reference for direct fire distribution that speeds the understanding and assumption of sectors of fire. The simplicity of this technique – and its flexibility to adapt to the mission variables (i.e., METT-TC) – demands little leader cognitive bandwidth while still ensuring good direct fire distribution.

Direct Fire Control: Fire Commands

While fire commands are most often practiced at the crew level, they can also enable effective direct fire control—particularly at the platoon and company levels. Fire commands allow leaders to direct the number of weapons systems, frequency, and orientation for the employment of the unit's direct fire weapon systems. Fire commands allow leaders to quickly issue orders and instructions in a standard format, driving speed and understanding in execution. Leaders that direct when and how to fire can achieve greater shock effect against the enemy, without unnecessarily giving away friendly unit locations. Per ATP 3-90.1,[18] the platoon and company fire command consist of the following elements:

1. Alert

2. Weapon or ammunition (optional)

3. Target description

4. Orientation

5. Range (optional)

6. Control (optional)

7. Execution

Chapter 6 of ATP 3-90.1[19] also outlines terrain-based and threat-based direct fire control measures that can be used both in a fire command and the unit's broader direct fire plan:

Terrain-based fire control measures

1. Target reference point

2. Engagement area (EA)

3. Sectors of fire

4. Direction of fire

5. Terrain quadrant

6. Friendly quadrant

7. Maximum engagement line

8. Restrictive firing line

9. Final protective line

Threat-based fire control measures

1. Fire patterns
2. Target array
3. Engagement priorities
4. Weapons ready posture
5. Triggers
6. Weapons control status
7. Rules of engagement
8. Weapons safety posture
9. Engagement techniques

Endnotes

1. Operations Group, National Training Center.
2. FM 5-0, *Planning and Orders Production*, 16 May 2022.
3. ATP 6-0.5, *Command Post Organization and Operations*, 1 March 2017.
4. Operations Group, National Training Center.
5. Ibid.
6. ADP 6-0, *Mission Command: Command and Control of Army Forces*, 31 July 2019.
7. FM 5-0, *Planning and Orders Production,* 16 May 2022.
8. ATP 3-90.5, *Combined Arms Battalion,* 15 July 2021, pages 6 to 14.
9. JP 3-09, *Joint Fire Support*, 10 April 2019.
10. AR 220-1, *Army Unit Status Reporting and Force Registration-Consolidated Policies*, 16 August 2022.
11. ATP 3-09.42, *Fire Support for the Brigade Combat Team*, 1 March 2016.
12. Ibid,
13. ATP 3-09.42 *Fire Support for the Brigade Combat Team,* 1 March 2016, chapter 5.
14. Ibid.
15. FM 3-09, *Fire Support and Field Artillery Operations*, 30 April 2020.
16. TC 3-09.8, *Fire Support and Field Artillery Certification and Qualification,* 30 March 2020, Appendix D, Table D-8.

17. ATP 3-90.1, *Armor and Mechanized Infantry Company Team*, 27 January 2016.
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19. Ibid.

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SECTION II

CHAPTER 2

The Logic of BCT Sustainment

LTC STACY MOORE

Sustainment doctrine provides a variety of ways a brigade support battalion (BSB) can support its units. However, while doctrine provides BSB commanders maximum flexibility to position sustainment capabilities across the battlefield, it does not fully address how to optimize efficiency and effectiveness when conducting sustainment. Likewise, doctrine does not outline the advantages and disadvantages associated with different battlefield geometries for the sustainment enterprise.

In the following article, Lieutenant Colonel (LTC) Gabriel Pryor aptly addresses the "how" of arranging battalion (BN) field trains, BN combat trains, and company trains to drive efficiency and flexibility in performing sustainment. The method he describes places the BN field trains in the brigade support area (BSA) and positions most of the distribution assets with those field trains. BN field trains' primary task is to receive and configure supplies for distribution. The BN combat trains have an entirely different purpose—to regenerate combat power. This is why combat trains house BN maintenance assets at the unit maintenance collection point (UMCP); emergency resupply stocks of fuel and ammunition; and the Role 1 aid station(s). BNs typically position their combat trains far forward of the BSA, where they can maintain contact with the BN's main command post (MCP) and provide support to the companies. In addition, BNs ordinarily position their company trains one terrain feature behind the maneuver force, enabling the lowest echelon of sustainment to drive the evacuation of personnel and equipment back to the BN combat trains.

Recent National Training Center (NTC) rotations show that positioning BN field trains in the BSB is the most effective approach—applying to all three types of brigade combat teams (BCTs)—for three key reasons:

1. It simplifies synchronization across the sustainment enterprise.

2. It increases forward support company security without encumbering the BN combat trains to reposition more freely across the battlespace with a lower probability of detection.

3. Co-locating BN field trains in the BSA provides more flexibility to BCT and BSB commanders as they seek to shift assets around the battlefield to meet sustainment requirements.

The most common alternative to the geometry outlined above is to position the field trains forward of the BSA with a liaison officer (LNO) at the BSB. Under this approach, BNs still perform twice daily logistics packages (LOGPACs); however, the BDE's distribution company executes a series of logistics patrols to move supplies from the BSA to the BNs' forward-positioned combat trains. Under this approach, each BN's field trains and combat trains are co-located, with the distribution platoon joining the maintenance and medical platoons. The forward support companies (FSCs) receive the commodities delivered by the distribution company, configure them into company "breaks," and then conduct logistics release point (LRP) operations to the companies twice daily. While this method has merits at the BN level, it creates clear challenges at the BDE level. Specifically, this approach decreases the likelihood that the BDE's distribution company will be postured to receive the division LOGPAC that likely only occurs once per day in large-scale combat operations (LSCO). If the BDE distribution company is delivering commodities to forward-positioned field trains, it may not be present in the BSA when the division LOGPAC arrives. Also, the BDE distribution company must have the capacity (i.e., "be empty") to take on the commodities that the division sustainment support battalion (DSSB) and combat sustainment support battalion (CSSB) is delivering. This occurs most easily when BN distribution platoons regularly draw supplies from the BDE distribution company twice daily at the BSA. When BN field trains are positioned forward, it is less likely that BN distribution platoons will routinely draw supplies from the BDE distribution company. Finally, there is a clear efficiency gained in positioning field trains at the BSA—if only because that is where the supplies are located. After all, it is more efficient to draw supplies from one central location rather than to force the BDE's distribution company to deliver those same supplies to up to six different forward locations. In summary, this alternative approach of positioning BN field trains forward of the BSA carries significant risk because it is less efficient, and it complicates the BDE's ability to receive supplies from the division.

Co-locating BN field trains in the BSA has an additional advantage—it increases security for the BDE's sustainment capabilities. Forward support companies are only manned and equipped to maintain one command post. BNs cannot secure both the field trains and combat trains in separate locations. Field trains have a large signature when one considers the density of vehicles and the supplies they carry. When BNs decide to co-locate their field trains with combat trains, they incur significant additional risk.

Persistent surveillance, long-range fires, loitering munitions, and pervasive drones are ever-present threats on today's battlefield, placing a premium on achieving concealment and mobility. BNs must not be tied down by cumbersome trains structures that cannot reposition with ease. Placing the field trains in the BSA distributes BN sustainment capability across the battlefield, reducing tactical risk. Importantly, it also allows BN field trains to pool security efforts with other FSCs and the BSB's companies, establishing a more effective perimeter defense at the BSA. BNs improve their ability to conduct tactical resupply when their field trains have a secure location to receive and configure supplies. Under this structure, the combat trains are no longer a node that is involved in LRP operations. This limits traffic to and from the combat trains, allowing them to remain better concealed. When BN combat trains carry only those capabilities that enable them to regenerate combat power (maintenance, medical, and emergency resupply), this critical echelon of BN sustainment will remain light and agile, making them better able to support units in the fight.

Forward support companies maintain better situational understanding and are better positioned for coordination when they position in the BSA. The support operations officer (SPO) in the BSB can maintain awareness of what is going on in the battle, the status of commodities in each supported BN, and when the next resupply from the division support area will occur. With the SPO's help, the BSB commander can direct the allocation or re-allocation of assets as necessary to meet the BDE commander's intent. The BSB commander can apportion sustainment effort across the BDE when the BN field trains (with all FSC commanders) are present in the BSA. The BSB commander or their staff can have a face-to-face interaction with FSC leadership, describe the mission in detail, and ensure that the FSC meets timelines and takes the correct commodities to ensure success. This coordination becomes much more complicated if the field trains are separated from the BSA. Given that reallocation of resources across the BDE can mean the difference between mission success or mission failure, it is imperative that the BSB commander have both the decision authority and the ability to rapidly reconfigure sustainment assets.

Synchronizing BDE sustainment is difficult, and it takes time to train. Therefore, BDEs must design home station training to stress the entirety of the unit sustainment system. The modular design of the BCT assigns each BN (except for the BSB) one FSC, troop, or battery. FSC commanders build strong relationships with their supported BNs; however, units must not lose sight of the requirement to ensure that FSCs develop strong relationships with each other and the BSB. FSCs form these relationships when they train together with the BSB. It is difficult for BDEs to stress sustainment systems at home station as lines of communication are often much shorter than the tactical distances expected in combat.

Moreover, few home station exercises train the entire BDE over extended periods of time. This means that units rarely consume more than the first day of supply (DOS), nor do they stress their casualty evacuation (CASEVAC) systems. The result is that the BSB and FSCs can't fully exercise the kind of synchronization required to perform sustainment in LSCO. Conducting sustainment over extended distances and time is difficult and often a limiting factor in mission accomplishment. Accordingly, units need the same focus in planning, preparation, and execution in sustainment as might be seen in other capstone training events, such as the company live fire exercise.

Failing to train sustainment can generate unacceptable risk across all BDE operations; for example, a lack of practice in tactical resupply results in missed linkups at LRPs, the failure of the BDE's distribution company to take on commodities in a timely manner, and the inability to maintain required levels of commodities on hand. In addition, when FSCs struggle to conduct two LOGPACs a day, BDE and BN commanders will struggle to maintain tempo and tactical reach. For example, suppose the FSCs are not delivering the first DOS of commodities to the supported BNs and holding the second DOS in their field and combat trains. In that case, the BSB's distribution company will struggle to take on the BDE's third DOS from the DSSB and CSSB. None of this makes for an efficient means to sustain the BDE.

Successful operations hinge on properly distributing personnel, equipment, and commodities across the battlefield. When FSCs do two LOGPACs a day and make a regular interface with the BSB commander and SPO, the BDE preserves its tactical reach. They also maintain the flexibility to capitalize on success or prevent culmination by moving resources across the battlefield. Having the field trains in the BSA simplifies synchronization of sustainment across the BDE, maintains agile and maneuverable combat trains, and provides the flexibility needed to maintain operational reach. Units must train and rehearse this just like any other critical task; the success of the BDE and BNs depend on it.

The following chapters will further reinforce the notion that field trains are best positioned in the BSA:

- Sustaining the Fight: An Approach to Brigade Logistics will explain the "how" of locating sustainment nodes across the battlefield.
- BSB Mobility and Load Prioritization will demonstrate how precious the distribution assets in a BCT are.
- Maintenance Management Techniques will emphasize the need for combat trains to remain agile and difficult to detect.

CHAPTER 3

Sustaining the Fight: An Approach to Brigade Logistics

LTC GABE PRYOR AND MAJ JASON BOST

Sustainment doctrine is heavy on the 'what' and 'who,' but light on the 'how' for both maneuver and sustainment commanders. This lack of detail leaves too much room for misunderstanding between commanders, especially for sustainment operations inside brigade combat teams (BCTs) where tactical operations and sustainment tasks must be closely coordinated. We must think about the sustainment fight in decisive action as the synchronization of the distribution loops of materiel. The loops described in sustainment doctrine are from the combat sustainment support battalion (CSSB) to the brigade support battalion (BSB), the BSB to the forward support company (FSC), and the FSC to the company trains. This is one too many and, in my 30 plus years of experience, three loops have been nearly impossible to synchronize. Therefore, we must reduce the number of loops and be more prescriptive as to how we will fight for sustainment.

— MG Patrick Matlock, 1st Armored Division Commander[1]

As the sun begins to set, a maneuver battalion (BN) sends its distribution platoon back to the planned brigade-level logistics release point (LRP) to receive fuel from the BSB distribution company. After waiting at the LRP for two hours with no BSB fuelers in sight, the distribution platoon leader takes the initiative and moves back to the brigade support area (BSA) to search for fuel for his BN. Arriving at the BSA an hour later, he learns that the BSB distribution company has just arrived at the forward LRP. Doing the quick math in his head, the platoon leader realizes that he no longer has enough time to move back to the LRP, transfer fuel with the distribution company, and meet his BN's timeline for the attack. What should have been a three-hour resupply mission took six hours, the maneuver BN's fuelers were empty, and the BSB distribution company's fuelers were full. Both the brigade (BDE) and BN face a difficult choice: delay the attack or risk early culmination because of a lack of fuel?

BDEs at the National Training Center (NTC) routinely face mission failure because they do not establish a clear and consistent approach to executing critical sustainment tasks. BDE logistics is hard; this should incentivize leaders to develop clear standard operating procedures (SOPs) and concepts of support that are precise. In addition, leaders at echelon must understand the orders and instructions that flow from the concepts of support.

Units must strictly adhere to SOPs that dictate personnel, equipment, and task requirements for sustainment nodes. By embracing higher precision in sustainment planning and preparation, BDEs increase their chances of mission success during training and combat. Figure 3-1 below is an example from the NTC sustainment trainers that is heavy on 'who' and 'what' but lacks the 'how' for sustainment and maneuver commanders.

BCT - Trains Functions (FM 3-96)

FOCUSED ON TASK, PURPOSE, AND CAPABILITIES	
Field Trains Command Post (FTCP)	**Combat Trains Command Post (CTCP)**
Tracks the current battle, maintains COP of BN actions, and informs SPO.	Tracks the current battle, maintains COP of BN actions, and informs CTCP.
Coordinates logistics requirements with the BSB SPO.	Controls sustainment support to the current operation.
Configures logistical packages tailored to support requirements.	Provides sustainment representation to the main command post for planning and integration.
Coordinates with the BCT for personnel services and replacement operations.	Monitors supply routes and controls the sustainment flow of material and personnel.
Forecasts and coordinates future sustainment requirements.	Coordinates the evacuation of equipment to field trains command post (FTCP) and repairs equipment.
Coordinate retrograde of equipment and personnel (casualty evacuation, personnel movement, and human remains).	Coordinates the evacuation of equipment to field trains command post (FTCP) and repairs equipment.
Personnel: A company command team (HHC or FSC) with 7-10 personnel capable of executing the FTCP tasks and purpose.	**Personnel: A company command team (HHC or FSC) with 7-10 personnel capable of executing the FTCP tasks and purpose.**
Capabilities: A company command post operating out of a tent or shelter with FM, JCR, analog trackers.	**Capabilities: A company command post operating out of a tent or shelter with FM, JCR, analog trackers.**

Bottom Line Up Front (BLUF): The composition (organization, personnel, equipment) of the CTCP and FTCP should be driven by capability required to effectively execute their required tasks. Sustainment Doctrine does not specify the composition of the FTCP and CTCP. FM 3-96 specifies the tasks expected of each node. Commanders must organize personnel and equipment to best support their BCT's mission (METT-C). FTCP/CTCP composition may change based on the mission (offense, defense, stability, DSCA).

The **combat trains command post (CTCP)** is responsible for coordinating with lateral units in the event that organic assets are not capable of providing timely support to subordinate troops. The CTCP may need to coordinate with adjacent battalions to use their resources to create efficiencies. Ref: FM 3-96

The **field trains command post (FTCP)** are responsible for the organization, operation, and synchronization of logistics packages (LOGPACs). It provides direct coordination between the battalion and the BSB. When organized, the field trains usually consist of elements of the battalion HHC, S-1, and S-4, and may contain elements of the FSC not located at the CTCP. The FTCP facilitates the coordination and movement from the BSB to the battalion. The field trains are responsible for coordination of security of its area of responsibility within the brigade support area (BSA). Ref: FM 3-96

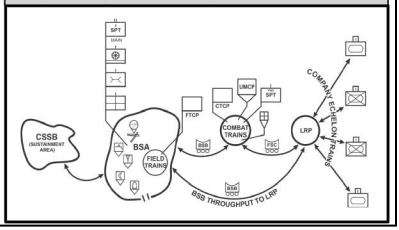

Figure 3-1. Echeloned Sustainment Trains Tasks (FM 3-96, *Brigade Combat Team*, 19 January 2021)[2]

This chapter provides a scaffolding for developing the concept of support and unit SOPs, anchored on three pillars. First, BDEs should standardize and resource sustainment nodes at echelon, including the company trains, combat trains command post (CTCP), field trains command post (FTCP), and brigade support area (BSA). Second, BDEs should establish clear standards for logistic packages (LOGPAC), accounting for methods of distribution under mission and operational variables (mission, enemy, terrain and weather, troops, time available and civil consideration [METT-TC] and political, military, economic, social, infrastructure, information, physical environment, and time [PMESII-PT]). Finally, BDEs should establish clear SOPs for casualty evacuation (CASEVAC) and medical evacuation (MEDEVAC). Ultimately, this chapter argues that BDEs should adopt a more specific, standardized approach to sustainment efforts to minimize friction and avoid failure. Figure 3-2 shows the sustainment battlefield framework.

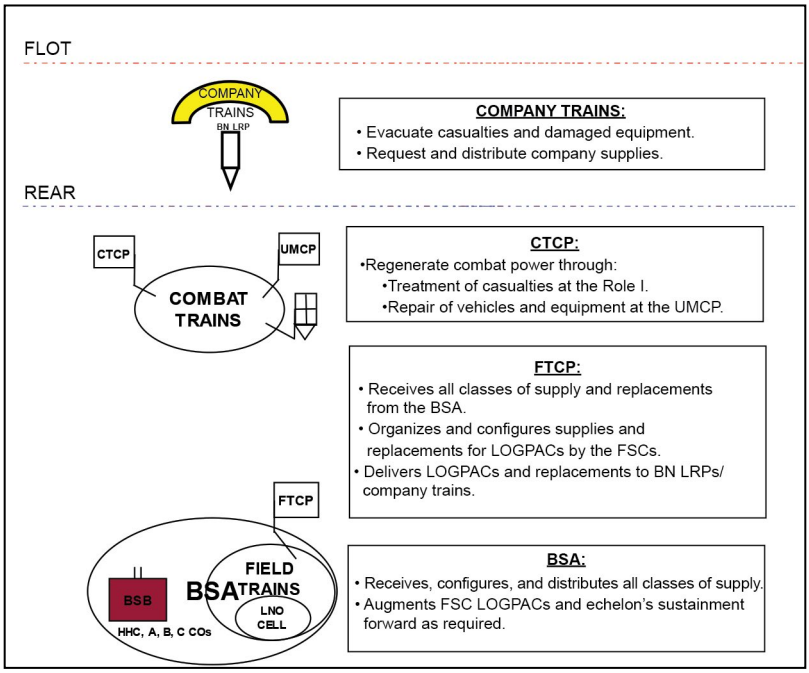

Figure 3-2. Sustainment Battlefield Framework (LTC Gabe Pryor and MAJ Jason Bost)[3]

COMPANY TRAINS PURPOSE AND ORGANIZATION—EVACUATE CASUALTIES AND VEHICLES

The most immediate and reactive sustainment echelon to the changing battlefield environment is the company trains. The primary purpose of the company trains is to evacuate casualties and non-mission capable (NMC) vehicles from the company area to BN collection points and to request and distribute company supplies. Company trains are typically located one distinguishable terrain feature behind the forward line of troops (FLOT), approximately 1 to 4 kilometers (km). The company trains perform five key functions, listed below:

1. Submit a logistics status (LOGSTAT) to request resupply (via radio, digital, or paper) to the CTCP with class (CL) III (petroleum, oil, lubricants) and CL V (ammunition) prioritized.

2. Facilitate the repair and return of combat vehicles by the field maintenance team (FMT) to the maneuver companies.

3. Conduct resupply via LRP operations.

4. Provide evacuation of casualties to Role I.

5. Perform evacuation of NMC vehicles to the unit maintenance collection point (UMCP) in the CTCP.

To highlight the second function, company trains require the FMT to repair and return NMC combat vehicles to the fight or to evacuate vehicles that are not repairable in four hours to the CTCP. FMT mission requirements typically dictate the following modified table of organization and equipment (MTOE) as shown in Table 3-1:

Table 3-1. FMT Equipment in the Company Trains (LTC Gabe Pryor and MAJ Jason Bost)[4]

1	1x M88 recovery vehicle
2	1x contact truck with VRC-89/90/92F radio and joint capabilities release system (JCR) system
3	1x forward repair system (FRS) mounted on a palletized loading system (PLS) with a M1076 trailer and container roll in/out platforms (CROPs)
4	1x M1083 with storage shelter to carry select bench stock and smaller supply list (SSL) parts to enable rapid forward repair of combat systems to the maneuver company

SSL should be tailored to support the equipment density in the maneuver company (analysis is available from Army Materiel Systems Analysis Activity [AMSAA] Logistics Analysis Division to stock the most frequently ordered items). Ultimately, the forward positioning and proper resourcing of FMTs allow the company trains to rapidly fix forward at the tactical point of need or evacuate both casualties and NMC equipment from the company area to BN collection points.

CTCP PURPOSE AND ORGANIZATION—REGENERATE COMBAT POWER

The primary purpose of the CTCP is to regenerate combat power and return it to the unit's fighting formations. The BN's combat trains do this in three primary ways:

1. Treating casualties and returning them to battle.

2. Fixing broken vehicles and returning them to battle.

3. Extending the commander's tactical reach by maintaining a small stock of emergency resupply (usually fuel and ammunition).

CTCPs are positioned according to the mission variables as defined by METT-TC and must be small and agile. They are typically co-located with the UMCP. All operations require the CTCP to coordinate sustainment in support of tactical operations by compiling the BN LOGSTAT and transmitting it to the BDE S-4 (supply) and the BSB support operations officer (SPO) to request resupply. The CTCP regenerates combat power during the mission by repairing damaged equipment and treating casualties at the Role I battalion aid station (BAS). In addition, the CTCP coordinates the retrograde of equipment to the BSA and evacuation of casualties to the Role II brigade support medical company (BSMC) as necessary.

The key personnel at the CTCP are the headquarters and headquarters company (HHC) commander, HHC first sergeant (1SG), HHC executive officer (XO), and the BN S-1 (personnel) and S-4. Additionally, located at the CTCP are elements of the FSC distribution and maintenance platoons (approximately 20 percent), the BAS, and the unit ministry team (UMT). Locating the battalion maintenance technician (BMT) and either the maintenance control officer (MCO) or maintenance control sergeant (MCS) at the CTCP is critical to maximizing their experience to fix NMC equipment as far forward as possible and rapidly return FMC equipment to the fight. Additionally, at the CTCP are some of the BN emergency resupply planning sequence (ERPS) clerks with access to Distributed Common Ground System-Army (DCGS-A) to provide the ability to report discrepancies on NMC equipment, order parts, and maintain the SSL.

Maintaining the larger portion of bench stock and SSL forward at the CTCP (in mobile storage) allows the BMT and FMTs quick access to fix forward at the tactical point of need. CTCP mission requirements typically dictate the following MTOE equipment as seen in Table 3-2:

Table 3-2: Critical CTCP MTOE Equipment (LTC Gabe Pryor and MAJ Jason Bost)[5]

1	2x M88 recovery vehicles and 1x M984 wrecker
2	2x contact trucks
3	VRC-89/90/92F radio and Joint Capabilities Release (JCR) tactical operations center (TOC) kit
4	1x FRS mounted on a PLS
5	1x standard automotive tool set (SATS) trailer
6	1x load handling system (LHS) with M1076 trailer and CROPs
7	1x M978 fuel truck with tank rack module (TRM)

Additionally, the maneuver BN's very small aperture terminal (VSAT) and a combat service support automated information system interface (CAISI) must be at the CTCP. Having the VSAT at the CTCP provides the capability of ordering and receiving a CL IX (repair part) on the next LOGPAC to fix an NMC pacer. The VSAT also provides a communications platform for maintenance processes, attendance of BDE maintenance meetings via defense conference services (DCS), and a means for the BN S-1 to conduct daily reporting. The temptation to position the VSAT at the BSA based on past SOPs is persistent but delays the ordering of high priority parts until 5988s from the FLOT arrive at the BSA with the FSC returning from LOGPAC. Having the VSAT forward allows ordering as fast and as often as the company, troop, and batteries push 5988s to the CTCP. Numerous BN battle rhythm events can be conducted in the UMCP to induce face-to-face decision making, including the BN maintenance meeting and logistics synchronization (LOGSYNC). Figure 3-3 illustrates the sustainment of personnel and equipment laydown.

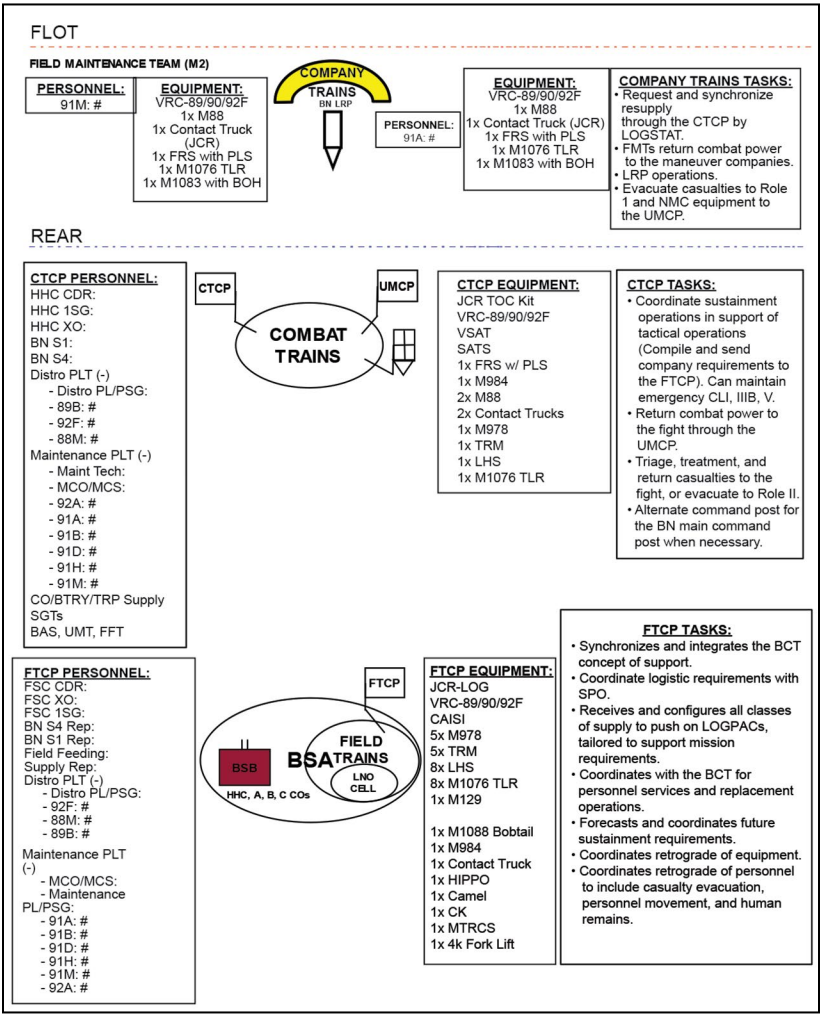

Figure 3-3. Sustainment Personnel and Equipment Laydown (LTC Gabe Pryor and MAJ Jason Bost)[6]

FTCP PURPOSE AND ORGANIZATION—RECEIVE, CONFIGURE, AND DELIVER SUPPLIES

The purpose of the FTCP is to receive, configure, and deliver all classes of supply to the companies via LOGPAC. FTCPs are located at the BSA to allow forward support companies to request, receive, organize, and configure loads for distribution. The FSC completes these functions, and simultaneously the BSA receives all classes of supply and personnel replacements for the BDE from the CSSB. FTCPs located outside of the BSA create another loop in the supply chain. This often results in mission failure when the alpha distribution company (ADC) distribution platoon assets are not present at the BSA when the CSSB resupply arrives.

Key personnel located at the FTCP are the FSC commander, FSC 1SG, FSC XO, and representatives from the BN S-1 and S-4. Additional forces located at the FTCP are elements of the FSC distribution and maintenance platoons (approximately 80 percent), the field feeding team (FFT), and the company supply sergeant. Positioning either the maintenance control officer (MCO) or maintenance control sergeant (MCS) (whichever is not at the CTCP) at the FTCP is critical to maximizing their experience to ensure the repair or evacuation of NMC equipment.

The MCO or MCS also supervises BN ERPS clerks who report discrepancies, order parts, and organize them into company configured loads to push forward with the FSC distribution platoon's twice daily LOGPAC. The FTCP also maintains the larger and less mobile portion of the SSL (major assemblies) to facilitate the FSCs configuration of those parts for transport and push forward on LOGPAC by the FSC to the company LRP. FTCP mission requirements typically dictate the following equipment requirements, as seen in Table 3-3:

Table 3-3. Critical FTCP MTOE Equipment (LTC Gabe Pryor and MAJ Jason Bost)[7]

1	1x M984 wrecker
2	1x contact truck
3	VRC-89/90/92F radio and JCR
4	8x LHS with 8x M1076 trailers
5	5x M978 fuel trucks
6	5x TRMs
7	1x load handling system compatible water tank rack (HIPPO)
8	1x unit water pod system (Camel II)
9	1x containerized kitchen (CK)
10	1x multi-temperature refrigerated container system (MTRCS)
11	1x 4K forklift
12	M1088 medium tactical vehicle (MTV) bobtail
13	1x M129 trailer containing the combined arms battalion (CAB) SSL

The primary platform for Non-Secure Internet Protocol Router (NIPR) connectivity at the FTCP is using CAISIs, pulling signals from one of the three VSATs in the BSA belonging to the SSA, SPO, and BDE S-1 to facilitate Global Combat Support System – Army (GCSS-A) access for the BN ERPS clerks and the attendance of key sustainment meetings.

DISTRIBUTION AND LOGPAC OPERATIONS

The purpose of the BSA is to receive, configure, and distribute all classes of supply for the BCT. Distribution is primarily accomplished through three methods, which are listed below:[8]

1. Supply point distribution

2. Unit distribution

3. Throughput

To synchronize distribution while operating across extended distances and durations, the concepts of support must specify the distribution method, location, and function of crucial sustainment nodes. The linchpin of BDE sustainment centers on ensuring that BN FTCPs are located in the BSA. The positioning of FSCs within the BSA facilitates the FSCs twice-daily LOGPAC and successful execution of distribution operations.

There are five primary benefits to arraying the FTCPs in the BSA. First, it allows the SPO to tailor asset allocation for LOGPAC operations and maximize sustainment responsiveness. For example, an FSC will usually resupply their BNs through twice-daily LOGPAC (unit distribution). However, when required, the SPO can use the ADC to augment an FSC or to conduct a BDE LRP to provide endurance, specifically when the battlefield expands and distribution distances are extended and more taxing, especially in a successful offensive operation.

Second, this technique is beneficial for receiving bulk supplies from the CSSB resupply to the ADC assets in the BSA. When the CSSB arrives at the BSA, ADC assets must be on hand and empty to receive the resupply, which is especially critical for CL III (B). Because the arrival time of the CSSB resupply to the BSA can be unpredictable, the ADC must be present in the BSA to receive the total resupply quantity from the CSSB. This loop is too difficult to synchronize if the ADC fuel and water platoon M978s and TRMs are out on LRP missions to the FSCs or are at full capacity of fuel because of missed LRPs with the FSC.

Third, co-locating FTCPs in the BSA improves the FSC's ability to configure combat loads by the company before moving to the BN LRPs, thus reducing time on site at the LRP. As the BSB receives and issues supplies to the FSCs in the BSA, the FSC is simultaneously configuring the company combat loads for the next LOGPAC. Configuring loads by company becomes particularly important with CL IX repair parts. In the BSA, FSCs can request and receive CL IX from the 4,252 lines of the authorized stockage list (ASL) in the SSA, and the 400 lines from the Bravo maintenance company SSL and push it on the next LOGPAC. This consolidation of FTCPs in the BSA also allows BNs to share SSL through the goods receipt process in GCSS-A, allowing each BN access to 2,200 lines of SSL as opposed to the 300 maintained by the individual BNs. Sharing SSL becomes more effective when maintenance meetings are conducted face-to-face daily with BN XOs or BMTs in the BSA.

Fourth, twice-a-day LOGPAC provides the means to complete the daily 5988E exchange. The morning LOGPAC delivers clean hard copy 5988Es from the FTCP or the CTCP to the LRP and distributes them to the company 1SGs. 5988Es are then distributed to the platoons and operators who complete the preventive maintenance checks and services (PMCS) and have the FMT mechanics verify and research the faults. The evening LOGPAC retrieves the completed 5988Es and provides them to the BN ERPS clerks at the CTCP, who add the faults and order parts in GCSS-A, where the NMC information becomes digital. This enables the supply system to:

1. Fill the requisition from the SSL or ASL.

2. Pick and configure parts by the FSC for the next LOGPAC.

3. Or refer the requisition to the national level.

Fifth, having FSC commanders at the BSA allows face-to-face coordination and deconfliction of LOGSTATs to ensure the SPO's synchronization matrix (SYNCHMAT) is accurate and feasible. Additionally, it allows the FSC commanders to participate in the BDE LOGSYNC and the BDE maintenance meeting, which is conducted face-to-face in the BSA, providing greater fidelity and common understanding of the concepts of support. In addition, during high operations tempo (OPTEMPO), the FSC commander can coordinate with the BSB commander to gain authority to temporarily increase logistics capabilities at the CTCP based on METT-TC factors to facilitate twice daily LOGPAC while maintaining a safe work rest cycle for the distribution platoon.

CASEVAC AND MEDEVAC OPERATIONS

To conduct effective CASEVAC with the number of casualties expected in decisive action, it is important to clearly delineate the battlefield areas of responsibility among the line company, the maneuver BN, and the BSB medical company. Figure 3-4 illustrates CASEVAC areas of responsibility.

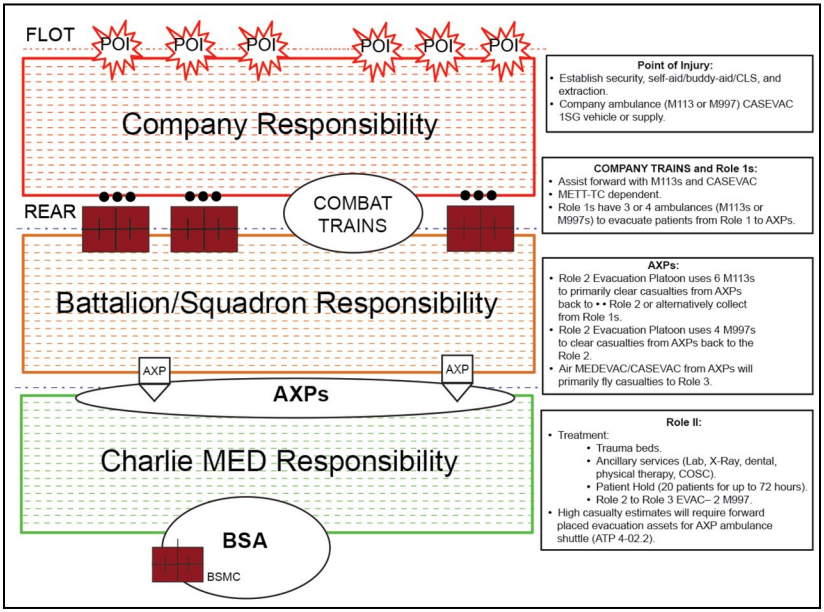

Figure 3-4. Casualty Evacuation Areas of Responsibility (LTC Gabe Pryor and MAJ Jason Bost)[9]

The responsibility for the evacuation of casualties from the point of injury (POI) to the Role 1 (BN forward aid station [FAS] or main aid station [MAS]) typically located at the combat trains falls on the line company medics and the 1SGs, using CASEVAC primarily. Actions at the POI include establishing security; treatment by self-aid, buddy-aid, or combat lifesaver (CLS); and preparation for movement to the casualty collection point (CCP). When the casualties arrive at the CCP, they are triaged and extracted. The extraction can occur using the MEDEVAC company ambulance (M113 or M997) when casualty numbers are low or a non-standard CASEVAC vehicle (high mobility multipurpose wheeled vehicle [HMMWV] or light medium tactical vehicle [LMTV]) when casualty numbers are high. In the latter scenario, company 1SGs who are proficient in non-standard evacuation of casualties by using HMMWVs or LMTVs to evacuate patients from POI to Role I have the most success. When higher numbers of casualties are anticipated, it is imperative to predesignate CASEVAC vehicles.

The responsibility for MEDEVAC from the Role 1 to the ambulance exchange point (AXP) falls on the maneuver BN to execute. However, the BN's Role 1 assets can assist forward by providing M113s for MEDEVAC support as the mission dictates and typically has three or four ambulances (M113s or M997s) to evacuate patients from Role 1 to the AXP.

The responsibility for MEDEVAC from the AXP to the Role 2 BSMC falls on the BSMC evacuation platoon. The BSMC evacuation platoon uses its six M113s (or M997s depending on road conditions and terrain) to clear casualties from AXPs back to Role 2. As this is mission dependent, the BSMC should preposition Role 2 M113s forward at Role 1 to expedite patient transport from Role 1 to Role 2. Using AXPs to move wheeled ambulances forward and preposition Role II tracked ambulances at select Role I locations may decrease patient died of wound rates. In decisive action, it is essential to note that patients transported from Role 1 or AXPs via air MEDEVAC should primarily fly directly to Role 3, bypassing Role 2 when mission geography allows.

In conclusion, sustaining the BCT during sustained ground combat operations requires a precise concept of support and refined unit SOPs. Leaders at every echelon must understand the purpose and organization of the company trains, combat trains command posts, and field trains command posts to conceptualize how these key nodes interact with the BSB and CSSB functions. The concept of support should specify distribution methods, key sustainment node locations, and methods for evacuation of medical casualties and NMC equipment. BCT staff who spend time thinking about how to sustain the BCT in decisive action will have greater success when operating across extended distances for long durations in training and combat operations.

Endnotes

1. MG Patrick Matlock, 1st Armored Division Commander.
2. FM 3-96, Brigade Combat Team, 19 January 2021.
3. LTC Gabe Pryor and MAJ Jason Bost.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. Ibid.
9. Ibid.

CHAPTER 4

BSB Mobility and Load Prioritization

CPT KYLE A. MYERS

According to Field Manual (FM) 4-0, *Sustainment Operations*, 31 July 2019, para. D-1,[1] tactical mobility is the ability of the brigade support battalion (BSB) to displace personnel and equipment during combat operations to survive enemy threats, maintain momentum, and extend the operational reach of the brigade combat team (BCT). The design of the BSB allows for two days of mobile supplies, with one located at the forward support companies (FSC) and the other at the BSB (FM 4-0, para D-5).[2] The BSB staff need to understand mobility concerning loads and transportation platforms and be aware of them to apply priorities and build plans. This is paramount, as knowing what has to be carried by the platform enables the BSB commander to surge, mass, and re-allocate assets to allow the simultaneous displacement of the brigade support area (BSA) while providing sustainment support to the brigade (BDE). To successfully provide direct support to the BDE in large scale combat operations (LSCO), BSB staff need to understand the BSA's mobility and prioritize loads to ensure responsiveness during unexpected situations.

When it comes to loads, the BSB staff needs to understand their carrying capacity in support of the BDE and how to prioritize loads. This includes classes I (food, rations, water), II (clothing), III (petroleum, oils, and lubricants), IV (fortification and barrier materials), V (ammunition), VII (major end items), VIII (medical supplies), and IX (repair parts). During initial operations, meals, ready to eat (MRE) will be the only solution for rations for up to three weeks before receiving unitized group rations (UGR) heat and serve (H&S). This allows the multi-temperature refrigerated container systems (MTRCS) to stage at CL I points from the division support area (DSA) back to the joint security area (JSA) in preparation for the transition to UGR and perishable and semi-perishable items that require refrigeration. There are 12 MREs per case and 48 cases per pallet for MRE planning. In addition, seven container roll-in/out platforms (CROPs) are required to carry the two days of supply of CL I for an armored brigade combat team (ABCT) (one to support each task force [TF]) (see Table 4-1).

Table 4-1. Class I Breakdown for an ABCT (Operations Group, National Training Center)[3]

Meal, Ready to Eat (M-M-M)					
	PAX	1 DOS Meals	2 DOS Meals	2 DOS Cases	2 DOS Pallets
CAV SQDN	624	1,872	3,744	312	7
CAB (AR)	593	1,779	3,558	297	7
CAB (AR)	593	1,779	3,558	297	7
CAB (INF)	670	2,010	4,020	335	7
FA BN	668	2,004	4,008	334	7
BEB	745	2,235	4,470	373	8
BSB	432	1,296	2,592	216	5
ABCT	4, 325	12,975	25,950	2,164	48

Table 4-3. CL I Breakdown for an IBCT (Operations Group, National Training Center)[4]

Meal, Ready to Eat (M-M-M)					
	PAX	1 DOS Meals	2 DOS Meals	2 DOS Cases	2 DOS Pallets
CAV SQDN	364	1,092	2,184	182	4
INF BN	648	1,944	3,888	324	7
INF BN	648	1,944	3,888	324	7
INF BN	648	1,944	3,888	324	7
FA BN	551	1,653	3,306	276	6
BEB	437	1,311	2,622	219	5
BSB	897	2,691	5,382	449	10
IBCT	4,193	12,579	25,158	2,098	46

Table 4-4. CL I Breakdown for an IBCT (Operations Group, National Training Center)[5]

Meal, Ready to Eat (M-M-M)					
	PAX	1 DOS Meals	2 DOS Meals	2 DOS Cases	2 DOS Pallets
CAV SQDN	476	1,428	2,856	238	5
INF BN	636	1,908	3,816	318	7
INF BN	636	1,908	3,816	318	7
INF BN	636	1,908	3,816	318	7
FA BN	518	1,554	3,108	259	6
BEB	446	1,338	2,676	223	5
BSB	1,034	3,102	6,204	517	11
SBCT	4,382	13,146	26,292	2,191	48

An ABCT needs to be able to move and maneuver on the battlefield in LSCO. Bulk fuel and maintenance enable the ABCT to maintain momentum and extend its operational reach during major combat operations. Class III (B) forecasting can be complicated and requires knowledge of the equipment on hand, consumption rates, hours of use, and terrain. An ABCT is authorized a one-to-one ratio of 48 M978A4 tanker heavy expanded mobility tactical trucks (HEMTT) and modular fuel system tank rack modules (MFS TRM) on palletized load system trailers (PLST), each transporting approximately 2,500 gallons of fuel. When using the consumption data from the quick logistics estimation tool (QLET) (based on May 2020 force structure designs and the 2019 Army G-4 [logistics] approved planning factors), a combination of 31 M978A4s with MFS TRMs on PLSTs can sustain the ABCT for a single day at maximum forecast consumption (highest level of fuel consumed from an array of 20 joint phased and military operation combinations). Once the onboard capacities of vehicles are added, an ABCT can move in the 48 to 72-hour window before starting to culminate during major combat operations.

While in the transition from the offense to the defense, CL IV is vitally important to slow down enemy threats while building combat power. Ideally, 900 meters (m) of triple-strand concertina wire maximizes the use of CROP space while providing flexibility for the BDE to adjust to the enemy. However, 600m of triple-strand concertina wire ensures the proper materiel loading to prevent loss during transportation on the battlefield (see Table 4-2 for composition). Each TF should carry one combat configured load (CCL) for its protective obstacle package, while the BSB should plan to have five CCLs to cover a three-kilometer (km) perimeter at the BSA. The BSB could carry up to an additional 20 CCLs, based on the materiel availability and priority of support within the division.

Ultimately, not all 20 CCLs will be used in a single defensive operation based on the BDE engineer's plans. Still, extra Class IV is carried for unforeseen losses from enemy destruction or the lack of time in the transition back to the offense to reload materiel.

Table 4-2. Class IV breakdown for triple strand concertina wire (Operations Group, National Training Center)[6]

Item		Quantity	
		600m*	900m*
Post, fence, metal	NSN: 5660-00-270-1510	324 each	486 each
Post, fence, metal	NSN: 5660-00-270-1588	12 each	18 each
Barbed tape, concertina	NSN: 5660-00-921-5516	120 rolls	180 rolls
Barbed wire	NSN: 5660-00-921-5516	6 spools	9 spools

*Quantities based on 300m triple strand concertina fence kit, NSN: 5660-01-498-3667.

Ammunition (Class V) is critical to allowing the BDE to fight and win on the battlefield. Along with general supplies and CL III (B), CL V will consume the most significant platforms in transporting the sustainment loads for the ABCT. Under ideal circumstances, CL V is packaged into mission-configured loads (MCLs) by the battalions (BNs), field trains, and the BSBs modular ammunition transfer point (MATP). The actual mission will define the size and scope of the MCL. As an example, an MCL built to support the seizure of the National Training Center (NTC) "Pass Complex" (a largely tank-centric battle) will dwarf the MCLs built in support of the urban "Razish" fight, which is a more dismounted infantry-centric battle. With this in mind, an ABCT should plan on the transportation of between 40 to 80 CROPs of ammunition based on the type and amount of combat power they anticipate encountering (This planning figure reduces to between 22 to 37 CROPs for an infantry BCT and between 29 to 53 CROPs for a Stryker BCT).

A proper quantity of general supplies ensures that personnel and equipment can continue to operate on the battlefield. The common authorized stockage list (CASL) with the supply support activity (SSA) in an ABCT consists of 18 Boh field pack-up units (FPU) and 35 CROPs. This CASL provides more CL IX within the BDE footprint to maintain readiness on the battlefield for upwards of 30 days.

Some pieces of CL VII (major end items) require transport via the M1075A1 palletized load system (PLS) or LHS. This CL VII is either unable to maintain march speed or has no other means of transportation. Other than the MTRCS and MFS TRM, this list includes the light capability rough terrain forklifts (LCRTF), LHS-compatible water tank racks (HIPPO), forward repair systems (FRS), and some expandable shelters.

UNDERSTANDING TRANSPORTATION PLATFORMS

Within the ABCT, the heavy lifters are the PLS, LHS, and PLST found in the BSB and the FSC. For example, in an ABCT, the BSB uses 20 PLS with PLST, 18 M978A4 with MFS TRM on PLST, and five LHS with PLST to distribute supplies to the FSC from the distribution company. Also, the SSA has 12 LHS with PLST; the MATP has three PLS with PLST; and the maintenance company has three PLS, one PLST, and four LHS to transport equipment or supplies for their mission. For the combined arms battalions (CABs); G FSC, H FSC, and I FSC have eight LHS with PLST and six M978A4 with MFS TRM on PLST for its distribution mission, as well as four PLS with PLST for its maintenance mission.

For the cavalry squadron, D FSC has 10 LHS with PLST and six M978A4 with MFS TRM on PLST for its distribution mission, as well as five PLS with PLST for its maintenance mission.

For the FA BN, each battery has two ammunition sections with three PLS with PLST to resupply the howitzer sections with ammunition. In addition, F FSC has 12 PLS with PLST and three M978A4 with MFS TRM on PLSTs for its distribution mission, as well as four PLS with PLST for its maintenance mission.

For the BDE engineer BN and ABCT headquarters, E FSC has three LHS with PLST and three M978A4 with MFS TRM on PLST for its distribution mission, as well as three PLS with PLST for its maintenance mission.

BUILDING AWARENESS

Once the BSB staff understands its loads and transportation platforms, they can start to build awareness to maximize efficiency and properly balance capabilities and requirements. The support operations officer (SPO) tracks logistics assets within each formation of the BDE to ensure timely delivery of required support at the right place and time and to advise the commander on the relationship of support requirements to assets available (Army Technical Publication [ATP] 4-90, *Brigade Support Battalion,* 18 June 2020, para. 2-25. and 2-28).[7] With this awareness, the SPO can apply the commander's priorities while building plans that ultimately enable the displacement of the BSA while providing sustainment support to the BDE.

The BDE commander charges the BSB commander to synchronize and integrate sustainment operations for the BDE (ATP 4-90, para. 2-6).[8] The BSB commander must retain the ability to re-allocate logistics capabilities to meet the BDE commander's intent within the operational and mission variables at hand (ATP 4-90, para. 2-6).[9] This can be accomplished only if the SPO arms the BSB commander with knowledge based on their awareness and understanding of the current logistics picture. With this knowledge, the BSB commander can consider the ability to surge, mass, and re-allocate assets from the BSB or FSC because of displacement of the BSA; task organization changes; or the loss or damage of logistics equipment. The FSC must recognize that it is a critical element to the BSB and BDE as a whole, and not just to the TF it supports.

Once the BSB commander has decided to re-allocate BSB or FSC assets to best support changes to the operation, the BSB or FSC must adapt to the changes. Ultimately, successfully providing direct support to the BDE in LSCO relies heavily on the BSB knowing its mobility capability and prioritizing loads to ensure responsiveness during unexpected situations. Surviving enemy threats, maintaining momentum, and extending the BDE's operational reach will require the BSB and FSC to remain agile with loads and transportation platforms. Additionally, to remain tactically mobile requires the BSB and FSC to keep loads loaded until needed to displace personnel and equipment during combat operations. To accomplish this, the BSB, and ultimately the SPO, needs to have an awareness and understanding of loads and transportation platforms to apply priorities and build plans to meet this end state.

Endnotes

1. FM 4-0, *Sustainment Operations*, 31 July 2019, para. D-1.
2. Ibid.
3. Operations Group, National Training Center.
4. Ibid.
5. Ibid.
6. Ibid.
7. ATP 4-90, *Brigade Support Battalion*, 18 June 2020, para. 2-25. and 2-28.
8. ATP 4-90, *Brigade Support Battalion*, 18 June 2020, para. 2-6.
9. Ibid.

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CHAPTER 5

Maintenance Management Techniques

CPT DAVID RHODES

A brigade (BDE) executive officer (XO) must evaluate the unit's maintenance effectiveness. XOs commonly accomplish this evaluation by tracking the submission of Department of the Army (DA) Form 5988-Es, *Equipment Maintenance and Inspection Worksheet*, 1 March 1991.[1] Typically, units require these forms to be turned in on a 24-hour cycle. Each battalion (BN) XO confirms the information on the 5988-E at the BDE maintenance meeting and brief their BN maintenance plans. This meeting should be held daily, and the venue can range from an in-person meeting or could be held on a BDE administrative and logistics (A&L) chat group using distributed systems. This meeting allows a unit to track and synchronize logistics efforts.

While this system can work well while performing duties at a garrison, it becomes cumbersome when viewed through an operational lens. Distributed systems can be invalidated when lines of communication are overextended. This overextension will slow down maintenance reporting because of the requirement to send 5988-Es on logistics packages (LOGPACs) between the company trains and combat trains. Maintenance collection points are required to move more than anticipated by this longer-than-predicted movement. Mission command nodes are also displacing, affecting upper-tactical internet systems, and the maintenance meeting cannot be held over the secure distributed chat as planned. This lack of communication capability has caused multiple units to miss the maintenance meeting, leading to further desynchronization of maintenance operations.

MAINTENANCE MANAGEMENT CHALLENGES AND TECHNIQUES TO SOLVE THEM

Distributed maintenance meetings pose a host of problems and are not the best way to synchronize maintenance operations. The potential for communication systems to fail and for misunderstanding to proliferate because of the inability to ask clarifying questions and gain maximum shared understanding makes distributed meeting suboptimal. While a distributed maintenance meeting is better than no maintenance meeting at all, in-person meetings provide the greatest opportunity to synchronize maintenance efforts. If units are going to invest the time in an in-person meeting, they need to make sure the right people are present. Army Techniques Publication (ATP) 4-33, *Maintenance Operations*, 9 July 2019,[2] states that the BDE XO chairs the meeting. The BDE S-4 (supply) officer, brigade support battalion (BSB), support operations section (SPO) officer, BSB SPO maintenance officer, all supported BN XOs, any separate company XOs, and the supply support activity (SSA) accountable officer attend the meeting. These personnel must come to the meeting prepared to brief updated information within their area of responsibility.

The BDE maintenance meeting needs to cover the following topics:[3]

- The BDE's missions for the next 72 hours
- BDE maintenance priorities
- BDE priorities of support
- Equipment status reports (ESR) scrub
- Key combat and support platform overall readiness rates
- Maintenance plan for each BN
- Timing of unit maintenance collection point displacements
- BN issues, such as current combat power, status of critical Class (CL) IX (repair parts), etc.
- Decisions and directives for controlled exchanges of maintenance significant parts to regenerate combat power
- Projected combat power, BN maintenance shortfalls, etc.
- Cross-leveling of assets

- Support operations issues (transportation shortfalls, long lead parts, etc.)
- Review of any issues from the previous meeting
- Review of any due-out assignments

While this is a long list to accomplish, a disciplined meeting—where all attendees are ready to brief—can be done in less than one hour. The output of the maintenance meeting should be a shared understanding of shortfalls and the maintenance plan. This will allow the BDE XO and the SPO team to synchronize activity across the BDE.

Part of this synchronization identifies when units are moving their unit maintenance collection point (UMCP). This timeline will help the BDE to understand how, when, and where it will be able to regenerate combat power. UMCPs will need to move more often during an offense than they would in a defense. Moving a UMCP can result in 12 to 36 hours of suspended maintenance activity. Displacements must be balanced with the need to regenerate combat power. Balance can be achieved by first positioning the UMCPs in a location that allows for the maximum amount of time for them to be stationary. This will allow BNs to regenerate the most combat power. Units must also consider the tempo of the battle and move the UMCP before the tempo slows. The BN XO, the forward support company commander, and the BN maintenance technician must understand the time it will take to complete the jobs that have already been started in the UMCP and the conditions across the BN that will determine when to have units hold vehicles in the company trains. Discussing UMCP displacements during the BDE maintenance meeting allows units to request recovery assets from the BSB to speed up displacement and limit down time for maintenance operations.

Even if the synchronization of the UMCP displacement is done well, the BDE may still fail the maintenance mission if they do not account for how effective they are in conducting maintenance operations. There are several ways of measuring effectiveness beyond simple overall readiness rates. Some units use subordinate unit reports of daily preventative maintenance checks and services (PMCS) or the turn-in rate of 5988-Es as a proxy for maintenance performance. While daily PMCS is important, and the 5988-E is a good tool for recording faults and checking to see if parts have been ordered against those faults; they do not capture the activity that must occur to repair faults.

Global Combat Support System-Army (GCSS-A) provides BDEs better ways to analyze information and inform commanders. The accuracy of the ESR is a much more effective means of measuring maintenance effectiveness than 5988-E turn-in rates. Data from the National Training Center (NTC) shows that the higher the degree of ESR accuracy a unit has, the higher its overall operational readiness rate (ORR). The inverse is also true. Therefore, units should focus on ensuring they are able to rapidly and accurately update their ESR and not become fixated on 5988-Es turn-in as a metric for maintenance being performed. Units can measure their ESR accuracy by going line-by-line for key platforms during the BDE maintenance meeting and paying particular attention to vehicles reported as deadlined and not on the ESR.

If ESR accuracy is that important, it makes sense for units to properly allocate resources to forward maintenance teams (FMTs) in the company trains, so they can update the ESR. The best way to ensure the ESR is updated is for the FMT to use their combat service support automated information system interface (CAISI) and GCSS-A computer to update the ESR directly. Defensive operations provide the ideal time to update the ESR because the BN maintenance activity and the FMTs are closer together and static for longer periods of time. Using the CAISI is less effective during the offense because units are moving more often, and line-of-site communications become degraded. The 5988-Es are the typical tool used to inform the BN maintenance activity that a piece of equipment is down if the FMT loses GCSS-A connectivity. Time is of utmost importance when moving hard copies of the 5988-Es on the battlefield. The faster a piece of equipment can be placed on the ESR, the faster parts can get to the FMT to repair the equipment. Doctrine provides that "timely maintenance support is reliant on supported units providing critical information. This information includes unit locations, type of equipment requiring maintenance, type of fault, mobility status (can the equipment move on its own), parts needed, number and status of supporting mechanics, and threat. Accurate reporting ensures commanders at all levels have true knowledge of the capabilities of formations from the forward line of troops back.

Units may use digital and radio communications to rapidly pass information up the chain of command but must use a DA Form 5988-E to maintain a permanent record according to ATP 4-33.[4] This information could easily be formatted into a Joint Capabilities Release (JCR) or Joint Battle Command-Platform (JBC-P) report that can be sent to the BN maintenance activity. The BN maintenance activity can then use this report to create the 5988-E for record keeping. Reporting via electronic means removes the need to move hard copy 5988-Es, thus saving time in the parts ordering process and helping units to build combat power faster.

During any fight, it is crucial to keep as much combat power in the fight as possible. Having effective BDE maintenance meetings, carefully planning UMCP displacements, and an accurate ESR will allow units to maintain enough combat power to combine arms in the close fight and win.

Endnotes

1. DA Form 5988-Es, *Equipment Maintenance and Inspection Worksheet*, 1 March 1991.

2. ATP 4-33, *Maintenance Operations*, 9 July 2019.

3. Operations Group, National Training Center.

4. ATP 4-33, *Maintenance Operations*, 9 July 2019.

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SECTION III

"Hard Problems" for Combining Arms: Tactics, Techniques, and Procedures to Solve Recurring Challenges

THINKING THROUGH THE "HARD PROBLEMS"

> "Everything is very simple in war, but the simplest thing is difficult. These difficulties accumulate and produce a friction, which no man can imagine exactly who has not seen war."
>
> – Carl Von Clausewitz, *On War*[1]

Combining arms is difficult. Combining arms in the chaos of the close fight is more difficult. Each month at the National Training Center (NTC), the Army's brigades (BDEs) are challenged in the closest approximation of combat that can safely be replicated. The scenario design, operating environment, and professional opposing force (OPFOR) provide levels of friction that make the NTC a crucible for learning how to fight. During rotation, BDEs consistently struggle with—and usually overcome—a variety of tactical problems.

In this section of *Combining Arms in the Close Fight*, some of these "hard problems" are discussed. These problems, when solved, can drive unit tactical success. For each of the problems below, the text provides a short vignette, frames the problem within existing doctrine, and offers "a way" to solve it. The tactics, techniques, and procedures (TTPs) described below are the best methods to use as BDEs solve these recurring challenges. Each problem ends with a practical exercise. Leaders are encouraged to use this section as a tool to drive home station training.

The "hard problems" are listed below:

1. Transitions from offensive to defensive and defensive to offensive operations

2. Developing effective priority intelligence requirements (PIR)

3. Intelligence preparation of the battlefield (IPB) staff collaboration

4. Leading with mortar fire

5. Combining arms in the air assault

6. Just-in-case logistics
7. Effective rehearsals
8. Plans to current operations (CUOPS) transitions
9. Empowering the air mission commander
10. Emission control
11. The hand off – mastering the passage of lines
12. Massed and responsive fires
13. Managing and defending the rear area
14. Engagement area development (EA DEV)

1. Carl Von Clausewitz, *On War,* 1832.

CHAPTER 6

Transitions from Offensive to Defensive and Defensive to Offensive Operations—From a Brigade Staff Perspective

Vignette: Your brigade (BDE) commander issued orders and instructions. They assessed the BDE as vulnerable to a counterattack and wanted to quickly transition from an offensive to defensive posture to defeat the enemy's attack. Your S-2 (intelligence and security) has not developed an event template nor an information collection plan to identify the enemy. The fires planner, air liaison officer, and targeting officer have not developed pre-planned targets for joint fires support to shape the enemy. Therefore, they have not synchronized the airspace and fire support coordination measures (FSCMs) to achieve desired effects on the enemy. Subordinate battalions (BNs) have not reported their current situation and combat power. The BDE chief of operations (CHOPs) does not understand the BDE's situation to enable the commander to develop a scheme of maneuver using the rapid decision making synchronization process. The protection chief does not know the location of the combat configured loads (CCLs), dig assets, status of decontamination assets, or the posture and Class (CL) V (ammunition) status of air defense assets. The S-4 (supply) has not received accurate logistics statuses (LOGSTATs), nor do they have fidelity of CL V across the BDE. Units have not met the requirement to conduct CL III (petroleum, oil, lubricants) and CL V resupply and shorten the lines of communication between Roles I and II support nodes. The S-6 (communications) has not reassessed if retransmissions and mission command locations will enable effective command and control (C2) to defeat the enemy's counterattack. The BDE commander is waiting for the staff's plan for the hasty defense.

FRAMING THE PROBLEM

Based on recent observations at the National Training Center (NTC), BDEs and their respective staffs struggle to account for transitions. For a BDE to be successful during large-scale combat operations (LSCO), its staff must be well-practiced at planning, preparing for, and executing transitions from offense to defense and defense to offense. To ensure a more deliberate approach, staffs should establish and train a methodology to anticipate, plan, rehearse, and actively manage their transitions. Below is an expansion of the aforementioned methodology and transition planning considerations.

Current doctrine focuses on transitions between stability operations and offense or defense. It provides little context to enable staffs to transition to offensive or defensive operations. The NTC observed trends showing that executing transitions from offense to defense and defense to offense challenges BDEs and staffs. Field Manual (FM) 3-96, *Brigade Combat Team*, 19 January 2021,[1] provides examples of why a BDE would initiate a transition that includes a change of political environment, objectives achieved, or the culmination of forces. For a complete list of reasons for executing a transition, see FM 3-96, chapters 6 and 7.

"A WAY"

To enable a BDE to shift momentum and assist the BDE commander in leading transitions, the BDE staff must leverage four critical tasks to achieve success during a transition.

Anticipate

Staff must anticipate when offensive operations will eventually culminate, whether through changes in the political environment, lines of communication needing to be shortened, or through achieving the commander's end state, and thus defend against an enemy's counterattack and transition. Because this is a known aspect of the operation, the staff must prepare and incorporate transition planning factors throughout the military decision-making process (MDMP), emphasizing the course of action (COA) development and wargaming. Enabling a deliberate shift in momentum, proper allocation of resources across all warfighting functions (WfF), and the identification of triggers is also necessary. Ultimately, the staff must help answer the question, "How does the BDE enable success in the next operation?"

Plan

Intelligence: The S-2 has the responsibility to identify terrain and avenues of approach the enemy may use. They incorporate these variables into the event template and situation template (SITEMP) and develop the collection plan to enable the BDE to begin shaping. Specifically, the S-2 should answer and develop the following:[2]

- How will the enemy fight during the transition?
- How will they use deception?
- What are their decisions?
- What are their objectives?
- How will the BDE conduct information collection on the enemy using echelon above brigade (EAB) assets?
- How will the BDE use organic air and ground collection assets, including the cavalry squadron?
- Develop an information collection synchronization matrix (SYNCHMAT) to account for the transition.

Fires: The fires planner and fire support officer (FSO) are responsible for determining the fires plan needed for the BDE to shape, based on the S-2's read of the enemy. In conjunction with the fire support coordinator (FSCOORD), the FSO must ensure:[3]

- The BDE commander's essential fires support tasks (EFSTs) are known, published, and adjusted if necessary.
- Batteries are in position ready-to-fire (IPRTF) in the correct position areas for artillery (PAAs) to provide the desired effects and reposition if necessary.
- The field artillery (FA) BN has the proper configuration of CL V and drive action to resolve shortfalls.
- The targeting working group (TWG) is conducted as follows:
  - Deliberate planning and synchronization of assets is accomplished using the air tasking order (ATO) cycle.
  - Optimally, the TWG has representation from all WfFs, including the S-4.

- The thinking has been done including close air support (CAS) allocation, targets, rotary wing crew availability, and concept of employment to potentially conduct an attack out of contact beyond the coordinated fire line (CFL).

- The air coordination order (ACO) is updated and submitted in accordance with new fires and aviation plan.

Maneuver: The BDE S-3 (training and operations) is responsible for synchronizing the entire plan across all WfFs. Additionally, they are responsible for publishing all fighting products, including the fragmentary order (FRAGORD). Specific items to publish are:[4]

- Updated graphic control measures (GCMs) with any boundary shifts, taking into consideration changes in combat power because of the current fight. (Note: it is the BDE S-3's duty to drive proper terrain management).

- Subordinate BN GCMs are consolidated and are on the BDE common operating picture (COP). This enables timely and accurate reporting between higher and adjacent headquarters, synchronization of direct fire control measures, and terrain management.

- Updates to the task organization if required, BDE SYNCHMAT, information collection synchronization matrix (ICSM), decision support tool/decision support matrix (DST/DSM), target list worksheet (TLWS), fire support execution matrix (FSEM), obstacle overlay, and timeline.

- For the BDE reserve; establish planning priorities, command and support relationships, and specify location to position on the battlefield.

Protection: The protection cell is responsible for the engineer effort, chemical protection posture, decontamination effort synchronization, and the air defense plan. The personnel who comprise the protection cell may vary. At a minimum, they must address the following:[5]

- Combat-configured loads (CCLs) composition and location must be known.

  - Optimally, CCLs are preconfigured in anticipation of a defense with a published distribution plan disseminated and rehearsed.

  - This accounts for how the BDE wants to defend based on survivability and counter-mobility priorities established by the BDE commander.

- Triggers for CCL movement are as follows:

  - Triggers will be clearly identified at all echelons with known staging points.

- Triggers will be tracked at the BDE level with responsibility fixed on who is identified for moving the CCLs.

- Survivability assets disposition and locations must be known.

- Survivability versus counter-mobility priority published.

- The brigade engineer battalion (BEB) will provide bottom-up refinement on who is responsible for what to ensure link up of cross-attached assets. The BEB will also provide refinement on who is supervising the construction of BDE-level obstacles such as an anti-vehicle ditch (AVD); wire/mine obstacles to include fratricide fence; and Spider Activated Volcano Obstacle (SAVO)/Volcano emplacement.

- Decontamination asset disposition known.

- Decontamination sites, and clean and dirty routes known.

- Amount of water on hand known to understand capability and throughput.

- Air defense asset locations and slant known.

- Man-portable air defense (MANPAD) and Avenger available to ensure proper employment across the BDE area of operation (AO).

- Update to priority protection list.

Sustainment: As the BDE is preparing for an enemy's counterattack, BNs resupply using their emergency CL III and CL V, and conducting logistics package (LOGPAC). This may drive a subsequent resupply from the combat sustainment support battalion (CSSB) to the brigade support area (BSA). This will enable sustained operations during and after the counterattack. This effort must be synchronized with:[6]

- Realign sustainment nodes and assets based on offensive or defensive operations and changes in task organization across the BDE.

- Do the following to shorten lines of communication to quicken regeneration of combat power:

- Whether transporting personnel to Role II or pushing classes of supply via LOGPAC, (including repair parts forward to BN maintenance teams) units must reduce the travel time between nodes.

- Clearly identify the trigger to jump the BSA forward or establishing a forward logistical element (FLE) is part of this process.

- To ensure Role II is fully operational during the attack an FLE can assist in positioning CL III, CL V, and medical assets to maintain momentum in the transition and allow the BSA to relocate without the BDE having a complete sustainment blackout.
- CL V consumption:
  - The BDE S-4 must account for CL V consumed in the current fight before transitioning to the defense.
  - The BDE S-4 must understand how much CL V is on hand by type and assess what is projected to be consumed in the defense.

Command and Control: The commander's role is to understand, visualize, describe, direct, assess, and lead. The commander must clearly convey their intent regarding the BDE's posture for the transition. The BDE staff can assist the commander in this process by consistently updating staff running estimates. These inform the operations process, enable current operations (CUOPs), and allow for the development of courses of action (COAs). To achieve this, the staff must do the following:[7]

- Identify triggers to relocate mission command nodes and retransmission sites:
  - If posturing to go on the defense: this is an opportunity to use the BDE tactical command post (TAC) to allow the main command post (MCP) to jump, shortening lines of communication.
  - If posturing to go on the offense: this is an ideal opportunity to use the BDE TAC to enable the MCP to jump, and subsequently C2 discrete operations within the transition such as a rearward passage of lines (RPOL), forward passage of lines (FPOL), or breach.
- Create a conditions check that captures the critical aspects of mission command nodes and retransmission sites, actively managing the transition and battle tracking.
  - This product is then transitioned to CUOPs for refinement and execution and can be incorporated into the DSM.
- Once received, the CUOPs section incorporates this checklist into the two-minute drill process. This provides periodic updates to the BDE commander, executive officer (XO), or S-3 to evaluate the process, re-establish priorities if required, or adjust the plan based on the WfF running estimates.
- This checklist, with clearly identified conditions by WfFs, creates shared understanding across the CUOPs floor and allows the BDE commander to make better informed decisions and associated risk.

Rehearse

Because the staff has identified a transition at the end of operations, the BDE can integrate this into the BDE combined arms rehearsal (CAR), the information collection (IC)/fires rehearsal, and the sustainment rehearsal. The rehearsals create additional opportunities for the staff to refine the plan and triggers to synchronize with down-trace units. For example, if time is not available during the BDE CAR, the transition can be rehearsed in a command post rehearsal or leveraging other techniques via the operational and intelligence (O&I) channel or upper tactical internet (UTI) to conduct a distributed rehearsal, the S-3 operational synchronization (OPSYNCH) meeting, or the S-2 intelligence synchronization meeting. However, it is critical to use the BDE's fighting products to visualize the complete transition by WfF and conduct product and plan refinement.

Actively Manage the Transition

An observed trend is units wrongly using a "light touch" and passively executing transitions that result in subordinate units not adhering to the BDE's timeline, which leads to the desynchronization of the BDE. It is paramount that the CUOPs actively have oversight and C2 of the transition. To accomplish this, the BDE MCP must have a firm grip on the operation. This is achieved by directing subordinate units, enforcing compliance with orders and instructions, and adhering to the BDE's published timeline to ensure the commander's intent is met. Battle rhythm events must be enforced. Specifically, operation synchronizations (OPSYNCHs) with subordinate units and S-2 synchronizations with all BNs to identify enemy courses of action (ECOAs) over the O&I net according to the unit's primary, alternate, contingency, emergency (PACE) plan must be completed. Command posts can further actively manage transitions by conducting command post rehearsals using the SYNCHMAT and conditions checks. Identify the decision maker who is managing the BDE fight (commander, XO, S-3, CHOPs, or battle captain) and rehearse the triggers and associated conditions identified during MDMP and the CAR to ensure a successful transition.

Properly identified triggers allow the following:[8]

- Focus of information collection efforts to reorient on refined enemy avenues of approach or assembly area.
- Focus of fires, shifting of priorities of fire, moving field artillery (FA) PAAs closer to the CFL to increase range beyond the CFL, reprioritization of rotary wing (RW), CAS.
- Repositioning of air defense assets.
- Shifting combat power from one unit to another based on task organization, battle damage assessment (BDA), and reporting.

- Moving CCLs and dig assets closer to the forward line of troops (FLOT) when in transition to the defense.
- Moving a FLE closer to the FLOT.
- Directing BNs to cross-level fuel and ammunition.
- Relocating command nodes.
- Relocating retransmission sites to enable communications.
- Commitment of the BDE reserve.

CONCLUSION

The time between offensive and defensive operations, and vice versa, are key transitions. When BDE staffs apply the methodology of anticipate, plan, rehearse, and actively manage toward transition, their organization will succeed in the operation's next phase. Only through the discipline of Army planning processes, such as MDMP and commander involvement, will staff make the leap from ad hoc happening to deliberate and methodical execution. Staff must have the foresight to anticipate a change in the momentum of the operation. This transition will be better executed when using a deliberate MDMP to plan. The transition must be accounted for in each BDE-level rehearsal and actively managed, ensuring compliance with the commander's intent.

Tactical Decision Making Exercise: Your BDE issues a FRAGORD via frequency modulation (FM). Upon seizure of objective (OBJ) DODGERS (H – Hour) no later than (NLT) H+24, defend along phase line (PL) DILLON (from PL ANNIE in the North to PL DRAGON in the South) oriented west to defeat a counterattack by the 411 MECH battalion tactical group (BTG). At H+2, the BDE will publish a FRAGORD with:

- Updated enemy event template
- ICSM and named areas of interest (NAI) overlay
- Fires overlay with templated PAAs
- TLWS
- FSEM
- ACO with immediate requests submitted
- BDE GCMs with BN boundaries and battle positions
- SYNCHMAT
- Protection overlay with dirty and clean routes
- Obstacle overlay
- Sustainment overlay with Roles I and II
- Mission command overlay with all command nodes and retransmission sites

Task: Write the FRAGORD, develop the transitions checklist, and identify what updates are required for fighting products.

Endnotes

1. FM 3-96, *Brigade Combat Team*, 19 January 2021.
2. Operations Group, National Training Center.
3. Ibid.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. Ibid.

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CHAPTER 7

Developing Effective Priority Intelligence Requirements

MAJ MAX R. ROVZAR AND SFC KRISTINE FARIAS

Vignette: Your brigade (BDE) has transitioned into a deliberate defense following the seizure of Objective (OBJ) DODGERS. The commander is interested in forward positioning the BDE reserve and will have them establish a tactical assembly area in one of two locations based on the threat course of action (COA). The S-3 (training and operations) was directed to commit the reserve decision point (DP) 1. The commander has approved the following high-payoff target list (HPTL): 1. Engineers (EN), 2. Fire support (FS), 3. Air Defense Artillery (ADA), and 4. Command, control, communications, computers, and intelligence (C4I). During intelligence preparation of the battlefield (IPB), the brigade intelligence support element (BISE) developed two threat COAs: 1. integrated attack and 2. dispersed attack. During the mission analysis briefing, the collection manager briefed priority intelligence requirement (PIR) 1, "How will the 803rd Battalion Tactical Group (BTG) attack?" The BDE S-2 (intelligence and security) thought they saw the commander roll their eyes and mutter something under their breath. The S-2 attributed it to the boss's tiredness, although the commander has expressed frustration with a perceived disconnect between information collection and fires.

FRAMING THE PROBLEM

Based on recent observations at the National Training Center (NTC), BDEs and their staffs fail to develop effective PIRs that enable BDE commander decision making. Units frequently develop initial PIRs during mission analysis but fail to refine or develop new PIRs during subsequent steps of the military decision-making process (MDMP). The failure to refine throughout MDMP results in broad PIRs that are divorced from the commander's DPs and targeting priorities. This ultimately contributes to an ineffective information collection plan.

A PIR is an intelligence requirement. The commander and staff need to understand the adversary or the operational environment. PIRs identify the information about the enemy and other aspects of the operational environment that the commander considers most important.[1] During planning, the commander must own the PIR. The commander personally engages in developing and approving PIRs that are clear, answerable, focused on a single question, and necessary to drive an operational decision. Lastly, and most significantly, the development of PIR is continuous, especially as operations progress. BDE staffs must socialize PIR with their commander throughout the plans and operations processes to ensure information collection is driving decision making.

"A WAY"

The following techniques offer "a way" to approach the development and refinement of PIR throughout the plans and operations processes in a collaborative manner. These techniques can assist staffs in developing effective PIR necessary to drive operational decisions in line with the commander's reconnaissance and targeting guidance.

A key function of the BISE is to determine the threat COA. A key function of the BDE fire support system is to set the conditions for a successful area defense by targeting enemy assets in accordance with the commander's approved HPTL. These two functions should not be exclusive. The following graphic (Figure 7-1) offers units "a way" to approach the convergence of information collection and fires to enhance lethality, expand maneuver, and inform the commander's execution of DP1.

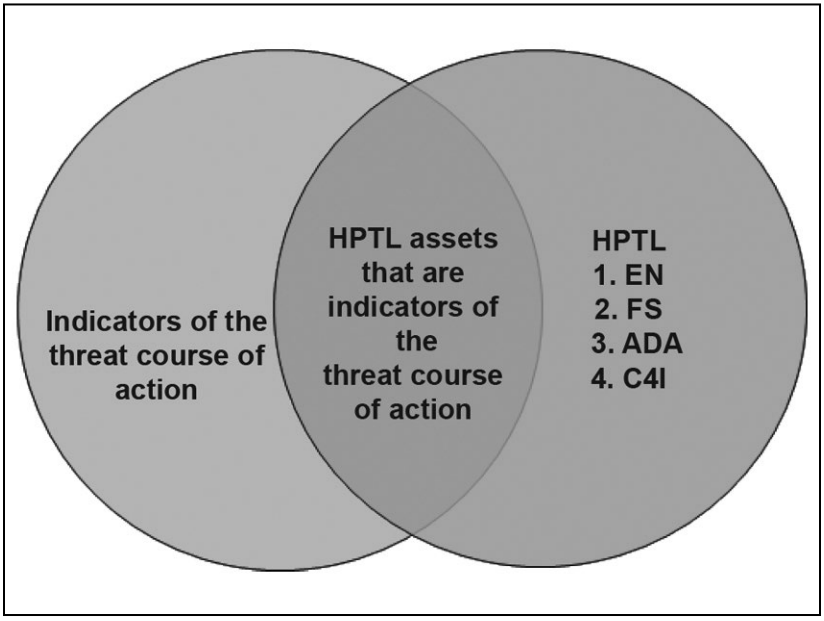

Figure 7-1. "A way" to Approach the Convergence of Information Collection and Fires to Enhance Lethality, Expand Maneuver, and Inform the Commander's Execution of DP 1 (Army Futures Command Pamphlet [AFC] 71-20-06, *Army Futures Command Concept for Fires 2028*, 6 October 2021)[2]

In the case of the vignette above, the 1 HPTL asset is the 803rd BTG's mobility assets. During COA analysis, the BDE S-2 (acting as the 803rd BTG commander) identified the need to conduct breaching operations because of the BDE's extensive engagement area development (EA DEV) during the transition from offensive to defensive operations. Additionally, their composition and disposition will be a great indicator of the threat COA. The staff is thus able to modify PIR 1 from "How will the 803rd BTG attack?" to "What is the disposition of the 803rd BTGs mobility assets?"

On to addressing the perceived displeasure displayed by the BDE commander upon hearing a broad PIR, putting PIR 1 on a white board and asking the following questions, "who, what, when, where, why, and how?" with a small cadre of staff personnel can add the fidelity the BDE commander desires in their PIRs.

In this vignette, based on the geospatial intelligence section's terrain analysis, the BISE concludes there are three potential avenues of approach for the 803rd BTG. The BISE also knows there is only one avenue of approach common to both COAs, based on the situation templates (SITEMPs). The staff can now answer the "where"—"What is the disposition of the 803rd BTG's mobility assets in the central corridor?"

Based on time-distance analysis in the event template, the BISE concludes 803rd BTG reconnaissance elements will enter a prescribed area at D+8 (day plus number of days). The BISE also assesses engineer elements will be second in the order of march. The staff can now answer the "when" and refine the "where": "What is the disposition of the 803rd BTG's mobility assets in the area from D+8 to D+12?"

Based on the red book, the BISE knows the 803rd BTG has two mobility assets, the MTK-2 mine clearer and the IMR-2M obstacle reducer. The BISE assesses the latter to be a more capable asset and likely to be task-organized in support of the decisive operations' avenue of approach. The staff can thus refine the "what" and the "who"—"What is the disposition of IMR-2Ms in the area from D+8 to D+12?"

Using this technique to develop specific PIRs shows the commander the BISE has done a significant amount of analysis on the 803rd BTG and will employ its information collection assets with discipline and specificity to answer a specific intelligence requirement (SIR) regarding the adversary, which will drive an operational decision for the commander.

Developing good indicators that drive answering PIR is critical. Good analysis should narrow the search upon the most critical two to four indicators, allowing the BISE to focus its collection and analytical efforts. This will help the BISE separate information from data. With the volume of reporting inherent to large-scale combat operations (LSCO), this can be a powerful tool in preventing the BISE from being overwhelmed by too many SIRs.

The above techniques represent "a way" to develop specific and effective PIR to support the targeting process and drive the operational decisions of the BDE commander. They are not intended to detract from doctrinal processes. They offer concrete methods for the continuous development of PIR.

Best practices observed from successful units include displaying PIRs with SIRs; displaying date time groups with PIR; displaying earliest time information is of value (ETIOV) and latest time information is of value (LTIOV) with PIR; and indicating what the PIR is tied to (e.g., DP 1).

Tactical Decision Making Exercise: Your BDE has been given a fragmentary order (FRAGORD). Upon seizure of OBJ DODGERS (H-Hour) no later than (NLT) H+72, defend along phase line (PL) DILLON (from PL ANNIE in the North to PL DRAGON in the south) against attacks from the 411 Mechanical (MECH) BTG. The BDE commander is interested in the following options: the employment of family of scatterable mines (FASCAM), the commitment of anti-aircraft artillery (AAA) for a deliberate attack out of contact, and the commitment of the BDE reserve. The commander has directed the S-3 to make these options their DPs 1 through 3 on the decision support matrix (DSM). Use the techniques in this paper to develop specific and effective PIR that support the targeting process and drive the operational decisions of the BDE commander.

Endnotes

1. FM 6-0, *Commander and Staff Organization and Operations,* 16 May 2022.

2. AFC 71-20-06, *Army Futures Command Concept for Fires 2028,* 6 October 2021.

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CHAPTER 8

IPB Staff Collaboration—Reverse Warfighting Function IPB

CW3 BARRY J. MCMASTER

Vignette: Your brigade (BDE) has transitioned into a deliberate defense for phase IIB following the defeat of the 801st mechanized (MECH) Brigade Tactical Group (BTG). During mission analysis (MA) for this phase, the brigade S-2 (intelligence and security) conducted steps one through four of intelligence preparation of the battlefield (IPB) with little input from other staff sections. The BDE S-2 developed threat course of action (COA) statements and the IPB planning and fighting products depicted below for COA 1 (dispersed attack) and COA 2 (integrated attack). During the MA briefing, the brigade intelligence support element (BISE) chief briefed each threat COA by providing slants, task/purpose/mission/end state for each maneuver element, and three 80th Division Tactical Group (DTG) commander's decision points (DP). The S-2 did not develop a detailed event template (EVENTEMP), and the enemy courses of action (ECOAs) lacked probable lines of contact by forms of contact.

Figure 8-1.1 and 8-1.2 illustrate the IPB and the steps of the military decision-making process (MDMP).

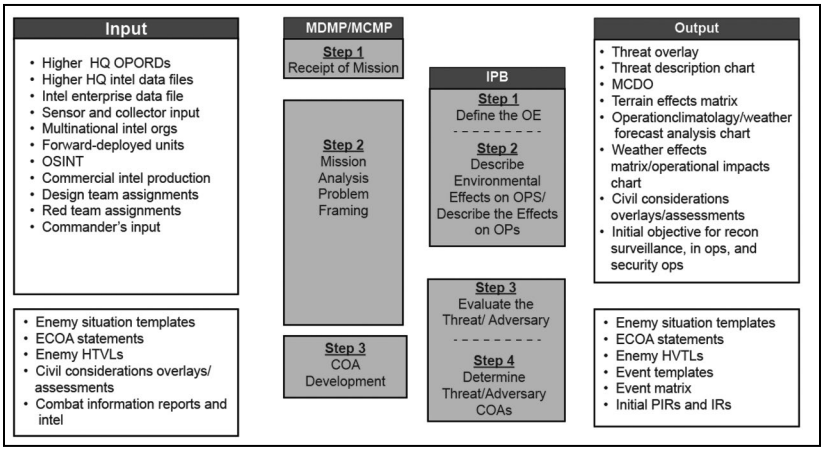


Figure 8-1.1. IPB and the Steps of MDMP (Operations Group, National Training Center)[1]

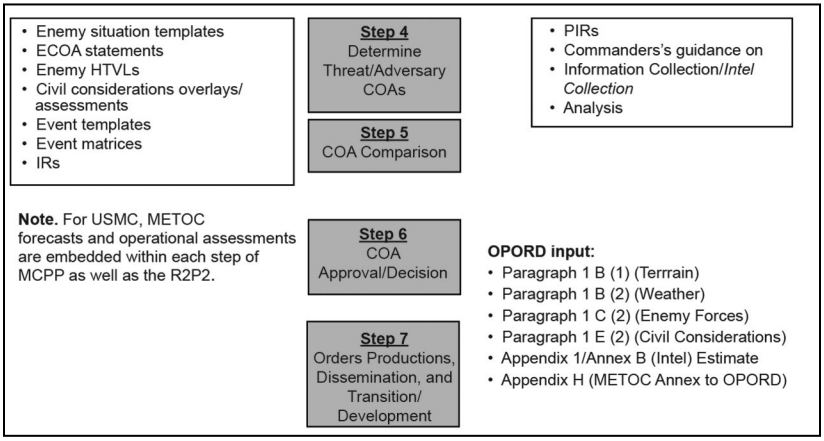


Figure 8-1.2. IPB and the Steps of MDMP (Operations Group, National Training Center)[2]

FRAMING THE PROBLEM

Commanders and staffs must have detailed knowledge of threat strengths, vulnerabilities, organizations, equipment, capabilities, and tactics to plan for and complete friendly operations.[3] Based on recent observations at the National Training Center (NTC), BDEs consistently fail to achieve staff collaboration during the IPB process. Although the intelligence staff has the primary responsibility for developing threat COAs, it requires assistance from the rest of the staff to provide the most accurate and complete analysis to the commander.[4] Units frequently place sole responsibility of conducting IPB on the BDE S-2, which results in threat COAs being void of other warfighting function (WfF) analysis and insufficiently articulating the threat appropriately in time and space. The EVENTEMP and matrix, which are critical outputs of step 4 of IPB (see Figure 8-2), provide the necessary detail required to help the rest of the staff achieve synchronization for the planning and execution of friendly operations. The BDE S-2 rarely produces these products to standard before PHIIIA/PHIIB (Phase 2 Alpha/Phase 2 Bravo) because of lack of staff collaboration during the IPB process.

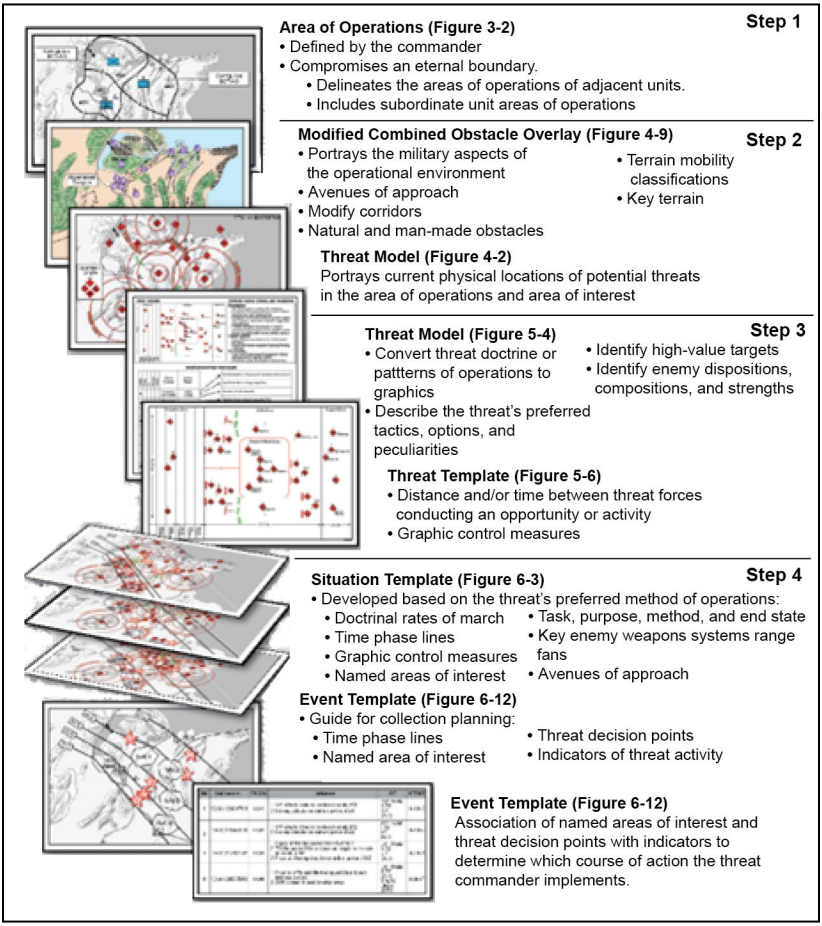


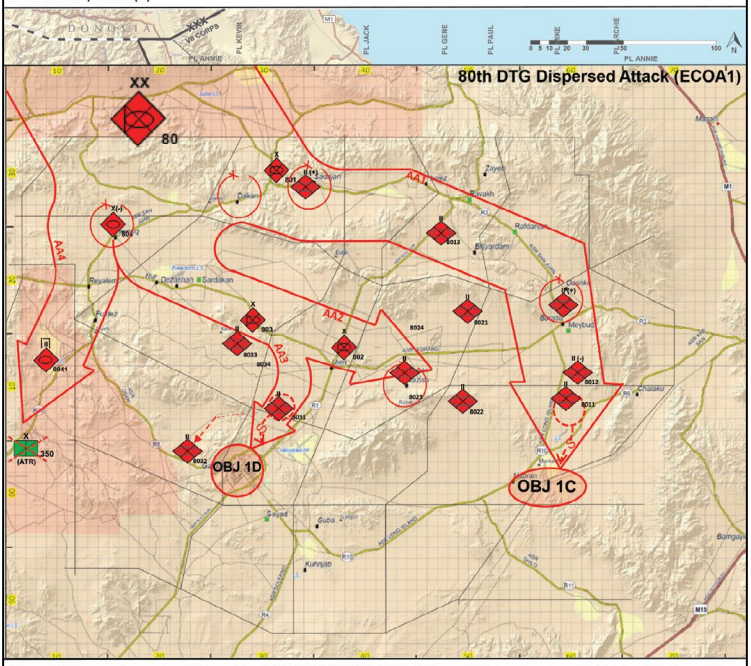
Figure 8-2. Critical Outputs of Step 4 of IPB (Operations Group, National Training Center)[5]

DOCTRINE

Current military intelligence doctrine, Training Circular (TC) 7-100.2, *Opposing Force Tactics,* 9 December 2011,[6] only enables the S-2 to provide the overall concept of the operation (as depicted in Figure 8-3), which provides mission, task, purpose, and end state; but not forms of contact by lines of contact. Unit ECOAs will regularly lack the "art" that other WfF expertise can provide. This prevents the staff from effectively synchronizing against an enemy depicted in time and space.

EXERCISE // EXERCISE // EXERCISE

EXHIBIT 5 (ENEMY COURSE OF ACTION SKETCH) TO TAB D (INTELLIGENCE PREPARATION OF THE BATTLEFIELD - PRODUCTS) TO APPENDIX 1 (INTELLIGENCE ESTIMATE) TO ANNEX B (INTELLIGENCE) TO OPORD 21-05-DA-ATR (WARHAMMER STRIKE) 1/52ID (U)



Phase (1) Reconnaissance and Disruption: NLT 120000MAR2021 80th REC establishes screen along PL Courtey IOT disrupt CF operations. NLT D+48 the 80th DTG crosses the international boundary with the 801st , 802nd and 803rd BTGs IOT set conditions to seize OBJ 1C and OBJ 1D. 80th AT BN task organizes (x1) AT CO (x6 HOT-3) to 80th REC, 804th BTG task organized (x1)CO(-) to 80th REC. 805th SP provides (x2) SP Batteries forward and (x1) MRL Battery ISO 80th REC IOT neutralize CF.

D – BRDM Hot-3 (5km), T90 (3km day, 2.5km night or 5km w/ATGM) Probable line of contact, PL Courtney.

I – (x2) BTRY of 2S19 (20KM), IVO Huvez and 11SNV337218, (x1) BTRY Prima (21KM) IVO Sadajan. Engagement area extends up to 5KM South of PL Courtney. IL219 IVO Sadajan (40km detection), (x2) 2S6,v (x1) IVO Razish, (x1) IVO 11SNV528230 N of Barasu (Detection, 18km, engagement 4km).

N – Displaced personnel heading south to Nabran via along ASR Long Island. Increased risk of BFB infiltrators from Razish, Barasu and Sadajan amongst civilians.

O – Hasty obstacles IVO Barasu IOT canalize CF into 801st engagement areas if forced to retrograde. Scattered mines and improvised explosive devices north of PL Courtney, ASR Long Island, and ASR IA Drang. AT Ditch with complex obstacles surrounding Razish. AT ditch IVO Rafdanjan, 11SNV5622.

C – 805th SP MRL BTRY capable of delivering non-persistent chemical munitions IOT disrupt CF maneuvers. Range extends South PL Courtney along A – 80DTG does not have priority for OSC-S Air Support. 80th REC possess (x3) Skylark UAS likely to be employed against high value targets within 1/52 ID Consolidation and Support Areas, HQ, and Artillery.

V – Artillery recon PRP-4A(1D14-1) Hill 781E, 720, provides for dismounted artillery recon to extend the range of the 1L120 BSR radar (20km moving and stationary tgts) Ops are limited to 6km away from the PRP-4A within line of sight of the vehicle. LTSD-4 LRF common to Recon Dismounted Ops can lase targets up to 15km with a 5m margin of error. Assume you are been observed and targeted 24h. Range decreases to 3-4km during nighttime. Dismounted Ops will maximize use of higher terrain to establish hasty dismounted bp in reverse slopes making them difficult to identify.

E – Cicada, multi-range jammer ranging 200km. Terrain in Erdabil province hinders jammer, equipment likely IVO 11SNV3820. Nest, multi range jammer, likely IVO Barasu.

Decisive Point – Screen established NLT D+24. 801st crosses LD (PL Betty attacking south to OBJ 1C.

Tactical Risk – Canalizing terrain, slows tempo by hindering the ability to mass combat power to achieve surprise against multiple objectives. DTG fires support unable to prevent CF from seizing the initiative if they maneuver north prior to 801st BTG reaching their line of departure.

Mission: *80t h MECH I NF DTG*, at tacks to seize key terrain in Erdabil Provinc e 1C City NBLT - 1- D-130400M5-1 A // R U2021 NCIOL TAS gai Sn IFfrIEDeedom // of Fm OUaneuvO er to seize city of S warbot (O SC-S OBJ-1), BPT defend against coalition forces a

Figure 8-3. Enemy Course of Action Example (Operations Group, National Training Center)[7]

"A WAY"

The following techniques offer "a way" to approach the development of a detailed EVENTEMP and supporting products that will enable better staff synchronization for the BDE's deliberate defense.

To move from conceptual to detailed threat COAs, the executive officer (XO) must ensure IPB is a collaborative effort, and each staff section needs to bring their expertise to the IPB process. The BDE S-2 must describe the sequencing of events by using time distance analysis for disruption forces, main maneuver forces, and support forces. BDE S-2 should also provide probable lines of contact by WfF and by forms of contact while describing the enemy's breaching capabilities. This level of detail will enable other staff WfFs to better synchronize efforts when planning the execution of this deliberate defense to defeat the enemy's dispersed attack.

Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Battlefield,* 1 March 2019,[8] outlines appropriate staff collaboration during IPB.

ATP 2-01.3 Staff Collaboration

The S-2 develops threat templates by WfF. Other staff sections assist in determining threat missions, objectives, schemes of maneuver, and desired end states.

The S-3 (operations) provides expertise on the art and science of military operations by doing the following:

- Ensuring the S-2 and other staff members understand available friendly maneuver forces.
- Reviewing the S-2's evaluation of threat COAs.
- Assisting in developing the decision support template (DST).
- Evaluating threat COAs to ensure they are valid from an operational perspective.

The S-4 (supply) assists in identifying and evaluating threat logistical capabilities and vulnerabilities, to include potential supply routes and resupply points.

The S-6 (communications) assists in identifying and evaluating threat communication capabilities including potential enemy retransmission locations and friendly communication system vulnerabilities.

The S-9 (civil affairs) identifies and evaluates civil considerations.

The fires enterprise assists in developing situation and event templates of probable threat employment of fire support (FS) assets by doing the following:

- Assisting the staff in identifying and evaluating potential engagement areas (EAs) and kill zones by defining threat artillery capabilities and ranges.
- Assisting in coordination with the S-2 and the staff weather officer in determining what effect weather and terrain will have on threat artillery systems.
- Participating in the selection of high payoff targets (HPTs), target areas of interest (TAIs), and DPs.
- Coordinating with the S-2 and the S-3 in determining the FS to the friendly information collection effort and in countering the threat information collection effort.

The BDE engineer provides staff input concerning threat mobility, counter-mobility, and survivability doctrine, tactics, and equipment capabilities by doing the following:

- Assisting in developing situation and event templates regarding the probable employment of threat engineer assets and obstacle emplacement.
- Coordinating with the S-2 and the S-3 in determining engineer support to the friendly information collection effort and in countering the threat information collection effort.
- Providing engineer reconnaissance input, including the military load capacity of bridges.

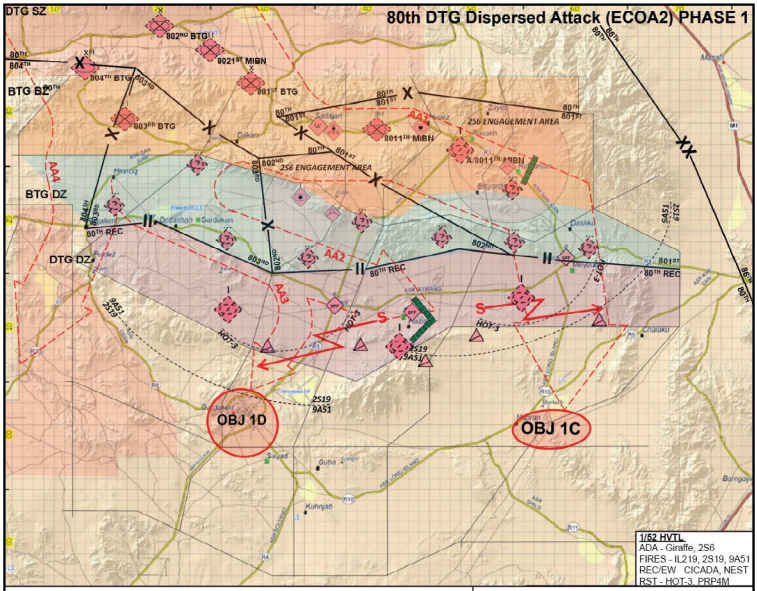
The chemical officer provides input on threat chemical, biological, radiological, nuclear (CBRN) doctrine, capabilities, and employment by doing the following:

- Assisting the staff in creating templates of likely locations of threat CBRN assets.
- Advising the S-2, in coordination with the staff weather officer, on the impact of the weather and terrain on friendly and threat CBRN operations.

The air defense artillery (ADA) officer assists in determining the locations of ADA assets and potential areas of employment.

The electronic warfare (EW) officer assists in determining the locations of EW assets and potential areas and methods of employment.

When the staff provides their expertise during IPB, the S-2 can update their ECOAs by adding forms of contact through lines of contact. This is the necessary detail required to achieve optimal staff synchronization, which can only be achieved if the BDE conducts staff collaboration during IPB. Examples of an ECOA, EVENTEMP, and event matrix are below in Figures 8-4 and 8-5, and Table 8-1.



Branch Plan: 802nd BTG attacks to envelope the flank of CF with (x1) MIBN along ASR IA Drang if 801st unable to reach line of departure before CF attacking north to Barasu and west to Razish. 802nd continues to apply pressure and deploys a second MIBN along the Siberian Ridge (AAI West od Long Island) to envelop coalition forces consolidation areas to delay USF allowing 80th to continue building combat power south of PL Annie.

Sequels:
- Win: 801st commits (x2) MIBN to seize OBJ-1C via [AA1], establishes hasty defense along PL Debbie.
- Lose: 80th Rec retrogrades, BTGs establish hasty defense N of PL Courtney and west of PL Mike.
- Draw: 801st and 802nd establish hasty defense-oriented SE from Razish to Barasu along ASR IA Drang.

Slants (T90/BMP/BRDM/HOT-3/INF SQD)
80th REC DZ 4/8/14/5/6/26
801st BTG DZ 8/18/4/3/6/4
802nd BTG DZ 8/12/6/4/6/4
80th DTG Enablers in support
- (x)25-30 BFB Fighthers IVO Barasu w/SPF team
- (x)75-85 BFB Fighters IVO Razish
- (x2) 2S19 Batteries w/(x1) MRL Battery
- (x2) 2S6

Phase (1) Reconnaissance and Disruption: NLT 120000MAR2021 80th REC establishes screen along PL Courtey IOT disrupt CF operations. NLT D+48 the 80th DTG crosses the international boundary with the 801st , 802nd and 803rd BTGs IOT set conditions to seize OBJ 1C and OBJ 1D. 80th AT BN task organizes (x1) AT CO (x6 HOT-3) to 80th REC, 804th BTG task organized (x1)CO(-) to 80th REC. 805th SP provides (x2) SP Batteries forward and (x1) MRL Battery ISO 80th REC IOT neutralize CF.

D – BRDM Hot-3 (5km), T90 (3km day, 2.5km night or 5km w/ATGM) Probable line of contact, PL Courtney.
I – (x2) BTRY of 2S19 (20KM), IVO Huvez and 11SNV337218, (x1) BTRY Prima (21KM) IVO Sadajan. Engagement area extends up to 5KM South of PL Courtney. IL219 IVO Sadajan (40km detection), (x2) 2S6, (x1) IVO Razish, (x1) IVO 11SNV528230 N of Barasu (Detection, 18km, engagement 4km).
N – Displaced personnel heading south to Nabran via along ASR Long Island. Increased risk of BFB infiltrators from Razish, Barasu and Sadajan amongst civilians.
O – Hasty obstacles IVO Barasu IOT canalize CF into 801st engagement areas if forced to retrograde. Scattered mines and improvised explosive devices north of PL Courtney, ASR Long Island, and ASR IA Drang. AT Ditch with complex obstacles surrounding Razish. AT ditch IVO Rafdanjan, 11SNV5622.
C – 805th SP MRL BTRY capable of delivering non-persistent chemical munitions IOT disrupt CF maneuvers. Range extends South PL Courtney along
A – 80DTG does not have priority for OSC-S Air Support. 80th REC possess (x3) Skylark UAS likely to be employed against high value targets within 1/52 ID Consolidation and Support Areas, HQ, and Artillery.
V – Artillery recon PRP-4A(1D14-1) Hill 781E, 720, provides for dismounted artillery recon to extend the range of the 1L120 BSR radar (20km moving and stationary tgts) Ops are limited to 6km away from the PRP-4A within line of sight of the vehicle. LTSD-4 LRF common to Recon Dismounted Ops can lase targets up to 15km with a 5m margin of error. Assume you are been observed and targeted 24h. Range decreases to 3-4km during nighttime. Dismounted Ops will maximize use of higher terrain to establish hasty dismounted bp in reverse slopes making them difficult to identify.
E – Cicada, multi-range jammer ranging 200km. Terrain in Erdabil province hinders jammer, equipment likely IVO 11SNV3820. Nest, multi-range jammer, likely IVO Barasu.

Decisive Point – Screen established NLT D+24. 801st crosses LD (PL Betty attacking south to OBJ 1C.

Tactical Risk – Canalizing terrain, slows tempo by hindering the ability to mass combat power to achieve surprise against multiple objectives. DTG fires support unable to prevent CF from seizing the initiative if they maneuver north prior to 801st BTG reaching their line of departure.

Figure 8-4. Enemy Course of Action (Operations Group, National Training Center)[9]

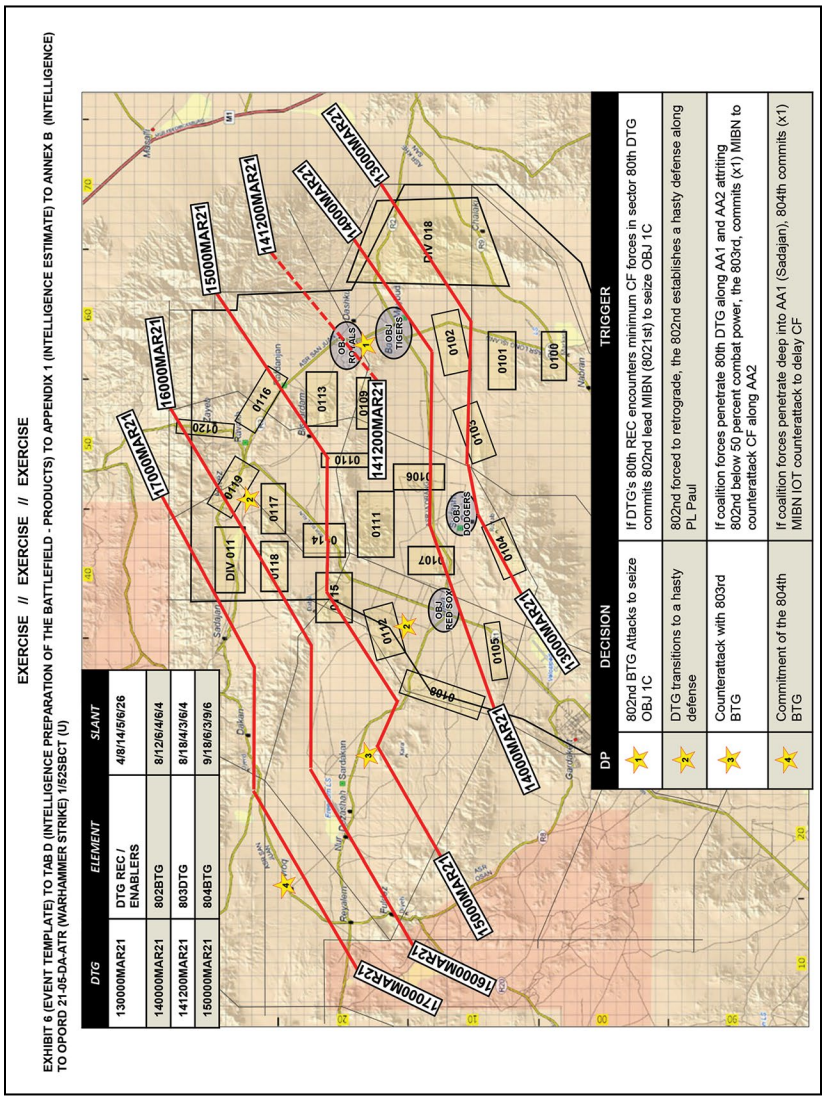


Figure 8-5. Event Template (Operations Group, National Training Center)[10]

Table 8-1. Event Matrix (Operations Group, National Training Center)[11]

DP	Location	Indicators	FFIR	Decision
802nd BTG attacks to seize OBJ 1C	TIGERS- NAI 0102 NAI 0101	1. Company (+) size element departing OBJ Tigers using ASR Long Island 2. 80th REC mounted OPs maneuvering SE relocating along Siberian Ridge oriented S	1. 8021st MIBN deployed along AA1 2. FPOL with 80TH REC 3. 2S6 placed IVO OBJ Royals ISO 80 REC 4. 9A51 confirmed in Sadajan ISO 80TH REC	1. 80th REC BN conducts rapid and forceful recon to secure AA1 and AA2 for 802nd BTG 2. 8021st attacks OBJ 1C to allow to exploit success along AA1
80th DTG transitions to a hasty defense	NAI 0107 NAI 0111 NAI 0114 NAI 0117 NAI 0119	1. 802nd forces unable to retain initiative against CF, 2. (x2+) MICs destroyed forward of PL Mike 3. DTG Recon attrited below 50 percent	1. SPF and BFB emplacing IEDs along ASR Long Island and within OBJ Tigers 2. 805 SP FA BDE over two minutes of sustained volume of harassing fires against CF 3. CBRN strike	1. 802nd retrograde to PL Paul 2. 8022ND maneuvers to support 8021ST forward IVO PL Paul 3. 803rd change of mission from OBJ 1D to be prepared to support 802nd against possible CF penetration via AA2

Counter-attack with 803rd BTG	NAI 0108 NAI 0112 NAI 0115	1. 802nd attrited below 50 percent 2. BFB increased activity IVO OBJ Rogers 3. (x2) MIBN crossing west to east NAI 0112	1. 802nd holds IVO PL Paul 2. 805 SP FA crosses PL Kevin (DIV RFI) 3. Increased EW activity along PL MIKE	1. 803rd BTG attacks along AA2 to delay CF advance 2. 802nd BTG blocks between PL Mike and PL Paul to delay CF advance 3. 803rd counter-attacks along AA2 to gain freedom of movement and retain key terrain
Commitment of the 804th BTG	NAI 0108 NAI 0112 NAI 0115 NAI 0118 DIV NAI 011	1. 803rd retrograding behind PL Gene 2. ATR/ CF forces achieve point of penetration	1. 804th DTG counter-attack across PL Gene via AA1 and AA2 2. 41st DTG crosses international boundary	1. Commit 804th DTG to counter-attack against ATR/CF penetration 2. 802nd defend IVO Sadajan, 80th DTG provides MRL fires ISO 804th along AA1

Tactical Decision Making Exercise: Your BDE has been given a FRAGORD. Upon seizure of OBJs ANGELS and RAYs (H-Hour) no later than (NLT) H+48, defend along PL DILLON (from PL ANNIE in the north to PL DRAGON in the south) against attacks from the 80th DTG. The BDE commander is interested in the following options:

1. The employment of FASCAM to separate enemy forces where the enemy will attempt to breach the deliberate defense, and where the exploitation/reserve forces will be committed.

2. The use the techniques recommended in this paper to conduct staff collaboration during IPB to enable optimal synchronization for the planning efforts of the BDE's deliberate defense.

Endnotes

1. Operations Group, National Training Center.

2. Ibid.

3. Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Battlefield,* 1 March 2019, 1-5.

4. Ibid, 3-5.

5. Operations Group, National Training Center.

6. TC 7-100.2, *Opposing Force Tactics*, 9 December 2011.

7. Operations Group, National Training Center.

8. ATP 2-01.3, *Intelligence Preparation of the Battlefield*, 1 March 2019.

9. Operations Group, National Training Center.

10. Ibid.

11. Ibid.

CHAPTER 9

Leading with Mortar Fire

CPT ROBERT LEGRAND AND SFC JAMISON LATHAM

Vignette: As a rifle company moves toward its objective, it receives accurate direct fire from an outlying village. Suppressed by a Boyevaya Razvedyvatelnaya Dozornaya Mashina (BRDM), multiple Boyevaya Mashina Pjehotys (BMPs), and crew-served weapons in fortified positions, the company is fixed in unrestricted terrain with limited cover and concealment. Based on the engagement criteria, Javelin gunners engage and destroy two BMPs. Because of the volume of fire, the final Javelin gunner is suppressed and cannot expose themselves to engage the final BRDM with anti-tank guided missiles (ATGM) and machine gun fires. By monitoring radio traffic, the fire support officer (FSO) can identify the location of the enemy positions and calls for fire. The FSO's request is denied because of one battery executing counterfire, one battery conducting a survivability move, and one battery occupying a new firing point. Army aviation and close air support (CAS) are unavailable because of the significant air defense artillery (ADA) threat. Outside the enemy's max engagement line, the battalion (BN) mortars have established a mortar firing point (MFP). Unable to acquire field artillery (FA) and air support, the FSO requests immediate mortar suppression and eliminates the remaining threats.

FRAMING THE PROBLEM

Fixed against an overwhelming mechanized force, the rifle company ineffectively suppressed the remaining BRDM and its ATGM and crew-served weapons. Without a deliberate fire support (FS) rehearsal, the company did not walk through this enemy contingency and did not visualize how to mitigate threats through BN or company mortars. The company failed to use priority targets along the axis of advance or plan targets centered on known or suspected enemy locations. By not establishing company essential fire support tasks (EFST) or preplanned targets, the company's effort to request FS was delayed for processing and denied for competing requirements. Despite having the BN and company's mortars in direct support, the company requested a brigade (BDE)-level asset that requires lengthy coordination and deconfliction.

The operation and tactical errors identified in the fictional vignette were designed to highlight common trends identified at the National Training Center (NTC). Often, units fail to employ their mortars because they do not plan, coordinate, and rehearse their employment. During the military decision-making process (MDMP) and troop leading procedures (TLPs), a majority of the unit's bandwidth is consumed with the scheme of the maneuver, with little concentration directed toward shaping the operation through mortar suppression. Equally important, commanders must assign clear and concise EFSTs to ensure the desired end state for the targeted enemy formation, function, or capability. Units that fail to prioritize rehearsals amplify the risk of not understanding FS tasks and fire support coordination measures (FSCMs). The outcome leads to a reactive unit, requiring the commander to alter the tactical or operational plan. That is why it is significant to conduct a deliberate fire rehearsal.

"A WAY"

Units must train to combine arms in the close fight by employing organic mortars. Mortars play a vital role on the battlefield. Because of the high demand for indirect FS, units cannot always rely upon the BDE's howitzers. Mortars provide a commander with responsive indirect fires. Further, mortar platoons are more aware of the local situation and are postured to respond quickly without lengthy coordination. A mortar element's high rate of fire and responsiveness make it ideally suited to suppress enemy forces. Suppression and obscuration are key to a successful maneuver.

For units to succeed at the tactical level, they must understand how to synchronize FS tasks with other combined arms tasks. BN and company commanders must designate EFST during the MDMP and TLPs to ensure the scheme of fires support the tactical plan. As the staff and FS planners build the course of action (COA), they determine how best to create the commander's desired effects. As best described in Field Manual (FM) 3-09, *Fire Support and Field Artillery Operations,* 30 April 2020, "FS planning serves as a basis for identifying EFST and for preparing the subsequent FS plan. The staff and FS planners determine where to find and attack enemy formations to create desired effects."[1] While there is no difference in the development of FS tasks and EFSTs, commanders should generally designate one EFST per phase of the operation. Each phase of the operation needs to include a task, purpose, method of engagement, and effects. To confirm the commander's intent is achieved, the unit must rehearse to ensure a clear understanding of FS tasks.

It is essential for units to rehearse specified tasks and FSCMs to ensure a clear understanding of where and when BN and company mortars will be employed. Staffs drive necessary refinements that emerge during the BN or unit commander's COA analysis. The COA analysis or war-gaming process enables the staff to identify required additions, deletions, and adjustments to the BN's FS plan. FS planning is the continuous and concurrent process of analyzing, allocating, coordinating, and scheduling supporting fires. Units must make refinements to the FSCM to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. Combining arms in the close fight requires deliberate coordination and effective employment of available fires. As defined in Army Techniques Publication (ATP) 3-21.90, *Tactical Employment of Mortars*, 9 October 2019, paragraph 1-9, "Maneuver and fires are inseparable and complementary dynamics of unified land operations."[2]

When orchestrating local FS, the BN commander must consider how the unit's movement and fires are controlled. When considering how to use the BN mortar platoon, a BN commander has three general options: employ the unit by platoon, section, or squad.

Employ the Unit by Platoon

The mortar platoon leader may operate the platoon from one or two (split sections) firing positions or by the squad, each with their own advantages and disadvantages. The advantages of firing from a single location are increased security, simplified sustainment and logistics, and command and control (C2). However, firing from a single firing point increases the risk of enemy counterfire because the unit is massed in a single location. When choosing multiple MFPs, the MFPs must not be so far apart to prevent massing the fires on a single target or out of the control of the platoon leader.

Employ the Unit by Section

The second option at the commander's disposal is operating the mortar platoon as a split section. Split mortar sections provide better area coverage, making MFPs less vulnerable to enemy counter-fire. However, leaders must understand the cost of operating in split sections. While mortar crews are less susceptible to enemy counter-fire, they are more vulnerable to direct fire engagements because of reduced local security. Split sections are also difficult to control and present a larger electronic signature from increased radio traffic.

Employ the Unit by Squad

The final method to employ a mortar platoon is by the squad. Within the three options, squad employment is the least desirable method of employment and is used only when the situation or terrain prevents adequate support.

When enabling the close fight, units weigh the support requirements, terrain, and positioning of firing sections to support the scheme of maneuver. As illustrated in ATP 3-21.90, paragraph 4-92, "The rapidly changing conditions of modern ground combat require a mortar leader always be prepared to displace. Detailed displacement planning helps provide immediately responsive fires."[3] Units must execute tactical and technical rehearsals of their FS plans. The maneuver commander controls the displacement of the mortar element by an on-order, event-oriented, or combined displacement. If enemy contact is unlikely or the mortar platoon is supplemented by FA, the maneuver commander can arrange a platoon displacement, which is the fastest way to establish a mortar firing point. Should a unit request immediate mortar suppression during movement, the mortar platoon can execute a hip-shoot or an emergency fire technique. If FA is unavailable, mortar platoons may displace by sections to provide continuous coverage.

The final and most difficult task units must accomplish to successfully employ mortars is sustainment. Whenever possible, units should conduct tactical resupply on a regular basis. As described in ATP 3-21.90, paragraph 6-52, "Requests for immediate [emergency] resupply not related to combat loss indicates a breakdown in coordination and collaboration between sustaining and operating forces. Immediate resupply that extends beyond the Infantry battalion's echelons of support capabilities requires immediate intervention of the brigade support battalion or next higher sustainment echelon capable of executing the support mission."[4] Should an unpredictable combat situation require emergency Class (CL) V (ammunition) resupply, units can execute a contingency prepackaged resupply. The best practice is for a mortar leader, in conjunction with the executive officer (XO), to determine the required supply rates using historical records, rate-of-fire computations, or a combination of both. After analyzing the CL V expenditure reports, units can identify the Department of Defense identification code (DODIC) in demand and preposition stock at the combat trains command post (CTCP).

Combing arms in the close fight requires units to master the fundamentals and operate self-sufficiently with organic assets. BNs must maximize the use of priority targets and plan targets based on known or suspected enemy locations. Suppression and obscuration are key to successful maneuver. A mortar element's high rate of fire and organizational responsiveness make it an excellent means to suppress enemy forces in the close fight. Therefore, commanders must provide clear and concise intent to combine arms in the close fight. Integrating mortar and FS teams as early as possible allows enablers to understand the maneuver, commander's intent, communication style, and desired battlefield effect. Over time, units will form a cohesive, lethal indirect fire element and lead with fires.

Additional resources include:

Headquarters Department of the Army United States Marine Corps, and Department of Defense, *Tactical Employment of Mortars*, October 2019, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN19389_ATP%203-21x90%20FINAL%20WEB.pdf.

Headquarters Department of the Army and Department of Defense, *Fire Support and Field Artillery Operations*, April 2020, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN21932_FM_3-09_FINAL_WEB.pdf.

FM 3-09, *Fire Support and Field Artillery Operations,* 30 April 2020.

Tactical Decision Making Exercise (Figures 9-1, 9-2, and 9-3): Your BN is tasked to penetrate Objective (OBJ) BRAVES to destroy Donovia's 13th Mechanized (IFV) Infantry BN's main defense force. 1-18 Infantry BN has priority of fires but is limited to one battery of M109 howitzers because of one battery supporting counterfire operations. An RQ-7 Shadow providing reconnaissance, surveillance, and target acquisition was shot down over OBJ BRAVES by a suspected SA-18. All Army aviation and CAS are temporarily suspended for the active ADA threat. A reserved mechanized platoon can reinforce OBJ BRAVES in 30 minutes or less.

Mission: 1-18 Infantry BN seizes OBJ BRAVES to destroy the 13th Mechanized BN's main defense force. On order, establish an area defense west of phase line (PL) LENNY to attrite the remaining elements of 13th Mechanized BN's counterattack.

Key Tasks:

1. Seize OBJ BRAVES and key terrain.

2. Neutralize ADA threat.

3. Destroy enemy reconnaissance in sector.

4. Deliberate engagement area development (EA DEV).

Tactical Decision Exercise Requirements:

1. Develop a scheme of maneuver to seize OBJ BRAVES and establish an area defense west of PL LENNY.

2. Employ organic scouts and mortars echelons.

3. Assign essential FS tasks to the BN mortars and FA enablers. Establish FSCMs (minimal 2x permissive and 2x restrictive FSCM).

4. Provide clear intent and reconnaissance and security guidance to the BN scouts.

5. Identify priority intelligence requirements (PIRs).

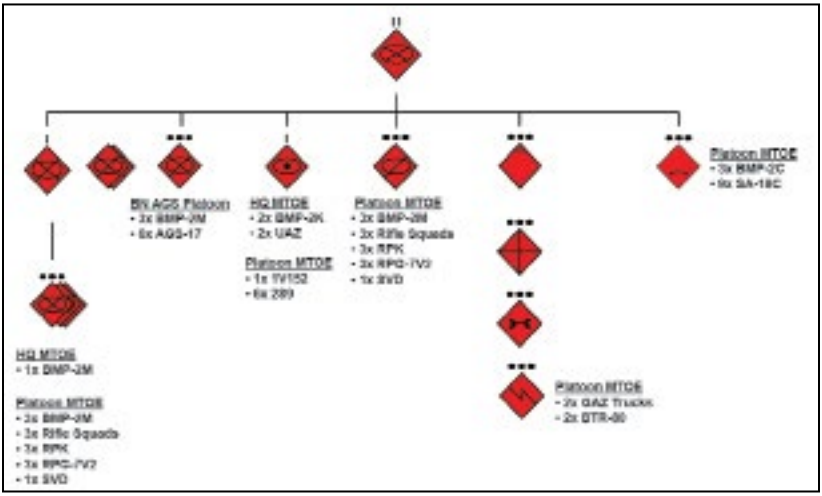


Figure 9-1. Donovian Mechanized Infantry BN and Company (Operations Group, National Training Center)[5]

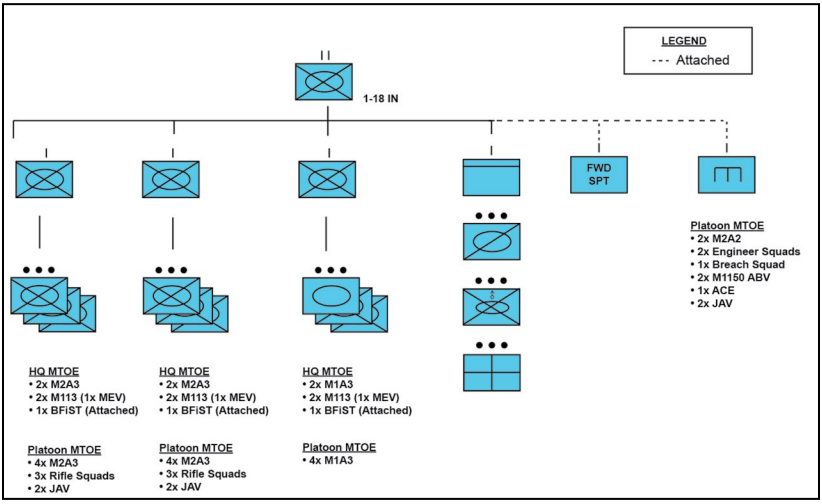


Figure 9-2. Task Organization (Operations Group, National Training Center)[6]

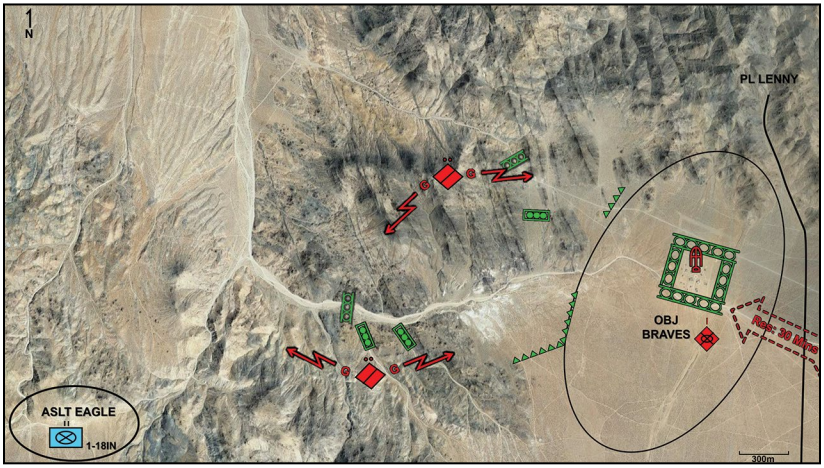


Figure 9-3. Enemy Situation Template (Operations Group, National Training Center)[7]

Endnotes

1. FM 3-09, *Fire Support and Field Artillery Operations*, 30 April 2020.
2. ATP 3-21.90, *Tactical Employment of Mortars*, 9 October 2019, paragraph 1-9.
3. ATP 3-21.90, *Tactical Employment of Mortars*, 9 October 2019, paragraph 4-92.
4. ATP 3-21.90, *Tactical Employment of Mortars*, 9 October 2019, paragraph 6-52.
5. Operations Group, National Training Center.
6. Ibid.
7. Ibid.

CHAPTER 10

Combining Arms in the Air Assault: Planning TTPs for Combat Operations

CPT CURTIS JOSLIN AND CPT GALEN KING

Vignette: Facing overmatch, an enemy company-size detachment has withdrawn to conduct an area defense of a key urban area. As part of its defense, the enemy establishes a battle position observing the brigade's (BDE) primary avenue of approach (AOA). The enemy integrates its battle position into restrictive terrain using multiple tactical obstacles with overwatch by observation posts (OPs).

The BDE commander elects to employ an air assault to secure key terrain and rapidly enable a combined arms breach. Accordingly, preparation for the air assault begins in the BDE among the multi-function aviation task force (MFATF), a field artillery (FA) battalion (BN), a cavalry squadron, and an infantry BN as part of the formation of the air assault task force (AATF). While providing enabling resources, the BDE delegates the AATF commander (AATFC) role to the BN commander. At the same time, the BN commander identifies the executing company commander as the ground tactical commander (GTC). In accordance with Field Manual (FM) 3-99, *Airborne and Air Assault Operations*, 6 March 2015, the AATF conducts its initial planning conference (IPC), air mission coordination meeting (AMCM), and air mission brief (AMB) concurrently during the military decision-making process (MDMP) or the rapid decision making and synchronization process (RDSP). Ideally, the AATF conducts the AMB before the AMCM. In this case, however, the AATFC elects not to conduct a combined arms rehearsal (CAR) after the AMB because of a lack of time.

Simultaneously, task force (TF) scouts, a cavalry troop, and intelligence, surveillance, reconnaissance (ISR) assets conduct a rapid and forceful reconnaissance of the landing zone (LZ) but cannot detect the enemy. Specifically, the AATF struggles to leverage available inorganic collection assets to identify enemy air defense artillery (ADA) and the security of the LZ. Additionally, by relying on rapid and forceful ground-based reconnaissance, the AATF struggles to rapidly prosecute suppression of enemy air defense (SEAD) and make the requisite hot (CHERRY) or cold (ICE) LZ call. Taken together, these factors stall the AATF's condition setting, delaying the insertion of the helicopter assault force (HAF). These factors ultimately disrupt the air assault company's ground tactical plan, and the BDE's broader combined arms breach.

FRAMING THE PROBLEM

Units face challenges in combining arms during air assault operations because of the complexity of parallel planning, coordination, and resource management, as well as the lack of unit experience in planning and conducting an air assault. These factors generate challenges when an AATF employs the air assault planning process to synchronize multiple headquarters and warfighting functions (WfFs) in a time-constrained environment.

"A WAY"

Preparing for and executing a combined arms air assault requires significant coordination and synchronization across the AATF and BDE. FM 3-99, *Airborne and Air Assault Operations*, 6 March 2015[1] and FM 3-04, *Army Aviation*, 6 April 2020,[2] provide a framework. Still, it is incumbent upon units to rapidly employ a planning methodology and standard operating procedures (SOPs) that do the following:

- Nest the air assault planning process (AAPP) in the BDE's MDMP and RDSP cycle.
- Allocate and apportion AATF information collection (IC), aviation, and fires resources early based on the intelligence preparation of the battlefield (IPB) and movement, landing, and ground tactical (GT) pans.

NESTING THE AAPP IN THE BDE'S MDMP AND RDSP CYCLE

As seen in Table 10-1, FM 3-99 provides a doctrinal framework for nesting the AAPP in the BDE's MDMP cycle. However, this framework struggles to enable coordination and rehearsals and undermines the AATF's ability to combine arms. In line with doctrine, it is incumbent upon the AATF coordinator and liaison officer (LNO) to immediately initiate the AAPP after receipt of mission (ROM) and publish a warning order (WARNORD). The WARNORD is essential in providing the AATFC's initial planning guidance for the movement, landing, and GT plans. It is essential to apportion the requisite BDE and echelons above brigade (EAB) IC, aviation, and fires assets to support the air assault.

Table 10-1. MDMP and Air Assault Planning Process (FM 3-99, *Airborne and Air Assault Operations,* 6 March 2015)[3]

MDMP Steps	Planning Steps	Key Attendees
Step 1: Receipt of mission Step 2: Mission analysis Step 3: COA development Step 4: COA analysis	WARNORD	Conference, meeting, board, brief, rehearsals
Step 5: COA comparison	Initial planning conference	BCT (S-2, S-3), AHB (S-2, S-3), GSAB (S-3), BN (S-2, S-3), BAO, AVN LNO, Co CDRs, ARB (S-2, S-3), others as required
Step 6: COA approval	Air mission coordination meeting	BCT (S-2, S-3, S-6, S-3 Air), AHB (S-3), GSAB (S-3), BN (S-2, S-3, S-3 Air), BAO, Pathfinder Co CDR, FSC CDR, FSO, AHB LNO, ARB LNO, Air Amb Co CDR, flight leads
Step 7: Orders production OPORD brief	Orders development	
	Air mission brief	AAFTC, FSO, AMC, AATF XO (S-2, S-3, S-3 Air, S-4, S-6), AHB (S-3, S-4, S-6), flight leads, GSAB (S-3), ARB (S-3, CDR), Air Amb Co CDR, FSC CDR
	Air crew brief	AMC, BCT (S-3), BAO, air crews

	AVN TF rehearsal	AMC, BCT (S-3, CDR, staff), BAO, FSO, air crews, leaders, other as required
	AATF and combined arms rehearsal	AATFC, FSO, AMC, BAO, AATF (XO, S-2, S-3, S-3 Air, S-4, S-6), AHB (S-3, S-4, S-6), flight leads, GSAB (S-3), BCT subordinate leaders as needed, Air Amb Co CDR, FSC CDR, ARB (S-3, CDR)
H-hour		

After the WARNORD, the BDE should include S-2 (intelligence and security), S-3 (training and operations), fires representatives from the AATF, assault helicopter battalion (AHB), and general support aviation battalion (GSAB) during mission analysis (MA) and course of action (COA) development when possible. Doing so accomplishes the following three things:

1. Initiates inter-BN parallel planning early.

2. Includes essential air assault planning considerations into the BDE's COA.

3. Begins apportioning BDE resources.

When able, conduct the initial planning conference (IPC) after COA development. Doing the IPC allows for a better wargame because it will help identify BDE resources required to combine arms in the air assault operation. The key outputs of the IPC are a tentative ground tactical, landing, and movement plan. The IPC should also refine what BDE resources are required for SEAD and preparatory fire near the landing zone (LZ) based on the S-2's IPB. Finally, executing the IPC immediately after COA development ensures the BDE staff war games the air assault scheme of maneuver (SOM) and apportions resources accordingly before COA approval.

Per doctrine, the AMCM occurs in tandem with COA approval. Key outputs from the AMCM are the finalized air movement, landing, and GT plans. Key outputs are completed in the pickup zone (PZ) and LZs based on the BDE's war game. The AMB occurs after the operation order (OPORD) brief and is a formalized staff brief to the AATFC and all executing elements. Lastly, per FM 3-99, the AAPP concludes with the aircrew brief, aviation task force (TF) rehearsal, and AATF combined arms rehearsal (CAR).[4]

By conducting parallel planning during steps one through three of the BDE's MDMP, the BDE and AATF can better synchronize and apportion resources supporting the combined arms air assault.

ALLOCATING IC, AVIATION, AND FIRES RESOURCES FOR THE AIR ASSAULT

While FM 3-99 provides a framework for allocating BDE and EAB resources to air assaults, it is critical that the staff request and apportion IC, aviation, and fires resources early during MDMP. Based on the BDE's IPB and AATF's IPC, the BDE should consider allocating the following:[5]

- Layered brigade combat team (BCT) and EAB IC assets (to include ground-based reconnaissance) to template or identify enemy air defense artillery and enemy on or near the projected LZ(s).
- Joint fires (JF), organic field artillery (FA), and/or nonlethal electronic warfare (EW) assets to execute SEAD, preparatory fires, and fires in support of the GTP.
- GSAB and AHB aircraft in support of the air movement, landing, and GT plans.
- AHB aircraft to confirm the security of the LZ in line with the AATFC's threshold for acceptable risk (CHERRY/ICE).

Initial allocation of fire assets begins with the BDE fire support coordinator (FSCOORD) or higher, depending on the size of the air assault. The priority of fire, the preponderance of assets, and asset availability are all critical factors in asset allocation.

After the WARNORD, properly allocating IC assets in support of SEAD requires significant collaboration across the AATF S-2 sections. Doctrinally, divisions and corps are responsible for developing and identifying enemy air defense targets and apportioning IC resources accordingly. However, a lack of aggressive parallel planning typically delays BCT and AATF requests for assets and information, preventing them from leveraging higher assets to develop target areas of interest (TAI). During mission analysis, it is similarly essential that the S-2 identify enemy ADA as high-value targets (HVTs) and nominate them to the high-payoff target list (HPTL). In concert with division and corps requests, this staff function apportions key assets to prioritize, develop, and target key TAIs in support of the air assault.

Based on the location of enemy ADA, Joint Publication (JP) 3-01, *Countering Air and Missile Threats,* 21 April 2017,[6] provides the three primary objectives for SEAD planning and classifies SEAD as either scheduled, on-call, or deceptive. In tandem with MA and the IPC, the AATF must begin apportioning and requesting JF, FA, and EW assets to support scheduled and on-call SEAD in support of the air assault. Doing so early in the MDMP timeline enables the AATF to apportion key fire assets to TAIs or templated enemy ADA locations. These trigger-based fire missions must incorporate organic mortar high explosive (HE) and FA smoke munitions once assaulters land when tactically feasible.

Incorporating attack aviation remains critical to supporting the air assault, as identifying an enemy in the LZ is of the utmost importance. Once integrated with a unit's SEAD planning, AH-64s are essential in rapidly identifying and destroying any enemy near the LZ, establishing the enemy minimum force posture to continue insertion, and facilitating the air assault insertion.

Tactical Decision Making Exercise: Per the above vignette and concept sketch in Figure 10-1, task force (TF) Blackjack attacks along AXIS AXE to breach objective (OBJ) METS (Red Lake Pass) to seize OBJ TWINS (Nabran) and OBJ ROCKIES (Whale Gap). On order, TF Blackjack passes 1/52 to defend in vicinity of (IVO) phase line (PL) PAUL.

To support its breach IVO OBJ METS, TF Blackjack elects to conduct a company-sized air assault to destroy an enemy battle position overwatching an obstacle blocking the BDE's primary AOA and enable the BDE's freedom of maneuver along AXIS AXE and attack on OBJ TWINS and ROCKIES.

Using the above methodology and vignette, develop and execute the following during a 48-hour MDMP cycle during a BCT command post exercise (CPX):

1. Following the MA and COA development briefs, conduct an IPC focused on parallel planning, requesting EAB assets, and apportioning resources in support of the air assault by both the AATF and MFATF S-2, S-3, and fires personnel.

2. Upon completion of the wargame, develop a BDE synchronization matrix (SYNCHMAT) to appropriately apportion layered BDE and EAB JF, FA, IC, and/or EW assets in support of the air assault and subsequent OBJs.

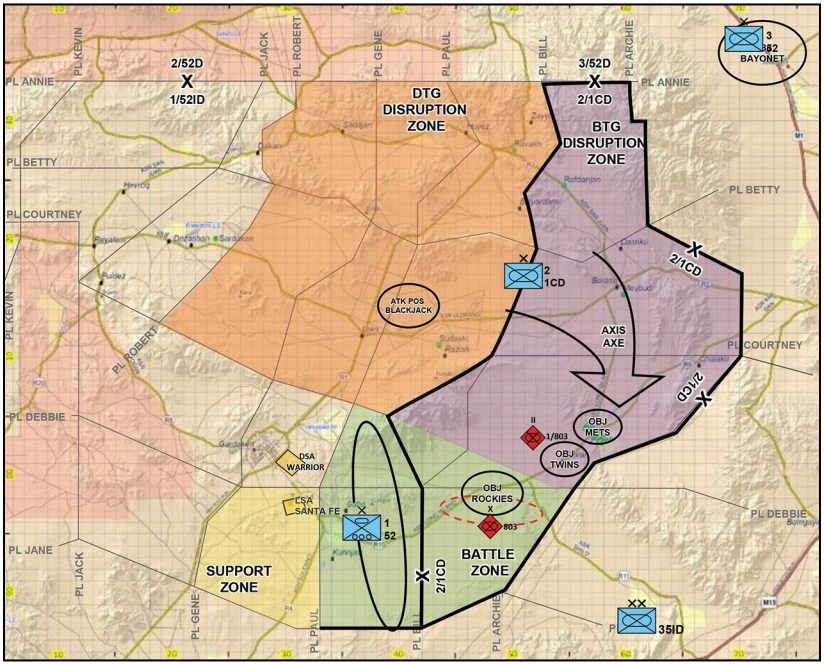


Figure 10-1. Vignette Concept Sketch (Operations Group, National Training Center)[7]

Endnotes

1. FM 3-99, *Airborne and Air Assault Operations*, 6 March 2015.
2. FM 3-04, *Army Aviation*, 6 April 2020.
3. FM 3-99, *Airborne and Air Assault Operations*, 6 March 2015.
4. Ibid.
5. Ibid.
6. JP 3-01, *Countering Air and Missile Threats*, 21 April 2017.
7. Operations Group, National Training Center.

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CHAPTER 11

Just In Case Logistics: The Art and Science of Emergency Resupply

CPT KARL OVERMAN AND CPT JOSEPH TERENIAK

> "Bitter experience in war has taught the maxim that the art of war is the art of the logistically feasible."
>
> — ADM Hyman Rickover, USN[1]

Vignette: After two hours of fighting, the battalion (BN) and its enablers successfully breach a section of enemy defenses from which to begin the assault. Bravo Company, originally designated to serve as the BN's main effort, is attritted to the level of culmination. Alpha Company, selected as a supporting effort to start the operation, expends a full unit basic load (UBL) to suppress a stubborn, dug-in enemy. Despite the BN's original company assignments, Alpha will now lead the BN's attack.

BN elements begin their movement through a contested stretch of terrain while platoon-level leaders across the forward line of troops (FLOT) consolidate reports and evacuate casualties. At the BN command post, the staff labors to manage a high volume of reports while updating operational graphics and running estimates to feed the current battle assessment. What is quickly apparent, despite planning and numerous conversations on cross-leveling, is that all three line companies are now critically short on linked small-arms and anti-tank munitions.

Responding to this dire reality, the S-4 (supply) frantically aggregates company reports and radios the headquarters and headquarters company (HHC) commander to determine what ammunition is on-hand and can be pushed to the line.

FRAMING THE PROBLEM

Commanders continually omit resupply operations in their initial planning guidance, fail to incorporate logistics running estimates into operational plans, and seldom give designated leaders clear task and purpose for resupply assets. Units across the Army struggle to execute emergency resupply because of hyper-focus on coordinating the maneuver and inadequately posturing elements in the combat trains to support the fight. Maneuver leaders often mandate that select distribution assets forward-stage static resupply packages, usually located at the combat trains command post (CTCP), with little or no guidance on what triggers necessitate a resupply. Units frequently omit key considerations when planning an emergency resupply, including:

- Determining which leader is responsible for discerning and communicating when triggers are met (HHC commander, forward support company [FSC] commander, BN executive officer [XO], S-4, company XOs, first sergeants [1SGs], subordinate and attached units).
- Using common language to create shared understanding (unit basic loads, combat loads, raw quantities, etc.).
- Refining planned routes and link-up points.
- Building standard Class (CL) III (petroleum, oil, lubricants) and CL V (ammunition) emergency resupply packages for the offense versus defense and positioning these packages with sufficient transportation assets at the combat trains.
- Identifying which maneuver leaders are designated to receive and integrate the resupply package (call signs and method of communication for direct coordination).
- Staging resupply assets to execute movement upon immediate notification.
- Ensuring resupply loads are built for expedient download and transfer.
- Accounting for task organization changes and the logistical requirements of enablers.

Failing to properly posture emergency resupply stockages forward can cause an otherwise determined maneuver BN to culminate before it reaches the objective. Viable plans require detailed coordination, clear communication, and effective rehearsals. A shared understanding ensures triggers are clearly disseminated and logistics assets are postured to accomplish responsive resupply.

DOCTRINE

Current Army doctrine offers a broad framework for planning resupply operations in describing various methods and establishing general conditions. Despite the absence of specific recommendations on how to do emergency resupply, the collective doctrinal offering provides a solid basis for units to build upon and implement. Common themes across relevant doctrinal sources are:

- The need for elements operating out of the CTCP to remain flexible and responsive.
- The importance of the S-4 integrating sustainment considerations into staff planning.
- The burdens placed on the BN's organic sustainment structure when emergency resupply becomes standard procedure – indicating a systemic inability to report and plan logistics.
- The emphasis placed on HHC to both coordinate and enable support operations.

Primary doctrinal sources offering guidance on resupply include Army Techniques Publication (ATP) 4-90, *Brigade Support Battalion*, 18 June 2020, (Chapter 6);[2] ATP 3-90.5, *Combined Arms Battalion*, 15 July 2021 (Chapter 6);[3] ATP 3-21.20 *Infantry Battalion*, 28 December 2017 (Annex H);[4] and ATP 3-20.96, *Cavalry Squadron,* 12 May 2016 (Chapter 7). "Be doctrinally sound, not doctrinally bound."[5] As the old adage suggests, complementing sound doctrine with ad hoc creativity is often the best way to outwit and prevail against a thinking enemy.

In keeping with Army Doctrine Publication (ADP) 3-0, *Operations*, 31 July 2019 (paragraph 5-19),[6] the desired outcomes of sustainment are: enable freedom of action, extend operational reach, and prolong endurance—the maneuver BN must continually refine techniques and best practices for completing resupply. The framework below reflects the necessary balance between the science of logistics planning and the art of synchronized execution.

"A WAY"—EMERGENCY RESUPPLY PLANNING SEQUENCE

Unit standard operating procedures (SOPs) should include the technique of the ERPS framework to meet tactical requirements by presenting the BN staff with a sequential set of planning considerations. When implemented, the framework assists BNs in achieving uninterrupted logistical support, posturing forces for transitions, and conditioning adaptability to emergent requirements. The steps for the framework are as follows:[7]

Step 1: BN commander prioritizes emergency resupply in their initial planning guidance.

Step 2: BN S-3 develops friendly force information requirements (FFIR) to identify when key commodities fall below specified mission-required levels.

Step 3: The BN common operating picture (COP) enables the staff to track, support, and enable emergency resupply operations.

Step 4: S-4 includes time-distance analysis and estimated transfer times into running estimate.

Step 5: FSC commander develops an effective array of logistics forces to project responsive support.

Step 6: Commanding officer at the CTCP (FSC commander or HHC commander) maintains a 20 percent emergency resupply overage for high-expenditure munitions to be immediately replenished.

Step 7: Commanding officer at the CTCP gives clear task and purpose to the elements identified to support emergency resupply and controls their release according to set conditions of the ground tactical plan and the BN commander's intent.

Step 8: Distribution platoon leader (PL) pre-configures company loads to expedite download and transfer.

Step 9: Company XOs designate truck assets for receiving resupplied commodities.

Step 10: BN conducts a rehearsal of emergency resupply plan.

Step 11: FSC commander develops and immediately performs replenishment plan when emergency resupply is used.

Performing emergency resupply can be one of the most challenging aspects of combat. Emergency resupply operations must be prioritized in the commander's initial planning guidance. Logistics running estimates must be incorporated into the maneuver plan and tasked clearly to leaders. When sustainment is a central part of the organization's operations planning, organizations are in a better posture to overcome the challenges of running out of what they need to take the fight to the enemy.

Tactical Decision Making Exercise: Using the vignette, develop a detailed logistics staff estimate, write paragraph four of a BN-level operations order (OPORD), and create a corresponding logistics sketch with graphics. Ensure that emergency resupply operations are addressed in each of these products.

Endnotes

1. ADM Hyman Rickover, USN.
2. ATP 4-90, *Brigade Support Battalion*, 18 June 2020, (Chapter 6).
3. ATP 3-90.5, *Combined Arms Battalion*, 15 July 2021 (Chapter 6).
4. ATP 3-21.20, *Infantry Battalion*, 28 December 2017 (Annex H).
5. ATP 3-20.96, *Cavalry Squadron,* 12 May 2016 (Chapter 7).
6. ADP 3-0, *Operations*, 31 July 2019 (paragraph 5-19).
7. Operations Group, National Training Center.

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CHAPTER 12

Effective Rehearsals

CPT CHRISTOPHER M. DIXON

Vignette: The battalion (BN) commander did not adequately prepare staff and subordinate commanders for the National Training Center (NTC) rigors. At best, planning efforts were mediocre, and the BN struggled with rehearsals. Like many units before, the BN staff diligently prepared an operations order (OPORD), though they had skipped wargaming entirely. Now, as the BN begins the combined arms rehearsal (CAR), it becomes clear that the BN's leaders intend to use this rehearsal as a war game, or worse, a confirmation brief of the BN order. The commander's issues with the BN CAR are exasperated because the staff had not distributed the BN fighting products. In addition, subordinate commanders and key enablers are not on the terrain model; thus, all hope for a shared understanding of critical timing is lost. The commander knew their ineffective rehearsal would cost the BN dearly and their worst predictions were now coming true. This BN could not combine arms to fix and kill the enemy in their engagement area (EA). The infamous opposing force (OPFOR) easily penetrated their lines and threatened to overrun the brigade's (BDE) main command post (MCP). If only they had taken the time to effectively rehearse the BN's defense when they had the chance.

DOCTRINE

The United States Army's current doctrine supports, encourages, and directs rehearsals at all echelons. While the type or method of rehearsal may vary, the end state remains the same. The "commander uses rehearsals as a tool to ensure the staff and subordinates understand the concept of operations and commander's intent."[1] To summarize doctrine: The goal of effective rehearsals is to ensure shared understanding across the formation in its entirety.

FRAMING THE PROBLEM

Effective rehearsals are a major contributing factor toward mission success at the NTC. However, as a trend, much like the leader from the vignette above, commanders fail to codify how their formations will rehearse key actions, leading to units delivering confirmation briefings or devolving back into war gaming.

The problems facing the commander described in this chapter's vignette are not unique but can be difficult to define by an inexperienced commander and staff. Several problems directly correlate to failure to execute effective rehearsals at the NTC. First, units at the NTC consistently fail to drive a shared understanding of the commander's intent. The commander's intent is the foundation of the operations process and is crucial for effective rehearsals. If rehearsals are ineffective because of a lack of shared understanding of intent, the operation will fail from the very start.

In addition to units' failure to communicate the commander's intent, two other issues translate to the inability to complete effective rehearsals. These two problems are uniquely related and often overlooked by units at the NTC. First, units regularly give little consideration to the enemy during rehearsals. Thus, units habitually do not rehearse contingencies for an operation that does not go to plan. By not integrating a free-thinking enemy into rehearsals, units often fall victim to confirmation bias. Units that fall victim to their own bias cannot execute an alternate or contingency plan when the operation is not going as expected.

Lastly, unit rehearsals are not based on the holistic combined arms fight and pay little attention to time. This failure to anchor the rehearsal in combined arms and time leads to misunderstandings of triggers, decision points (DPs), and risks. Moreover, these misunderstandings are directly correlated to failure on the battlefield because not all subordinates possess a shared understanding of the commander's intent in time and space and how they will decide to mitigate both accidental and tactical risks.

"A WAY"—EFFECTIVE REHEARSALS

Effective units must establish each leader's roles and responsibilities before, during, and after the intended rehearsal. Effective rehearsals always begin with the commander. Commanders must identify and prioritize critical events to rehearse, allocate time for each event, and perform personal preparation. The commander's preparation includes reviews of task organization completeness, personnel and materiel readiness, and organizational level of preparation.[2]

Following the commander, each leader must understand what information is required. Individual presentation requirements must be published in a standardized script for each type and method of rehearsal. Critically, the commander must assign a rehearsal director (usually the executive officer [XO])[3] to ensure that the information presented is relevant and that the rehearsal is free of counter-productive tangents. Immediately before the rehearsal, the rehearsal director or commander should provide a brief overview of the relevant topics, rehearsal subjects, script, ground rules, sequence, and timeline. The director must specify a no-later-than (NLT) end time. The specified NLT end time serves two purposes: first, it keeps the unit within the bounds of its standardized preparation timeline, and second, it sets boundaries for leaders to ensure that they present only pertinent information. Once the overview is complete, the commander can direct the rehearsal to begin.

The Center for Army Lessons Learned (CALL) publication 19-18, *Commander and Staff Guide to Rehearsals: A No Fail Approach*, 2019,[4] provides an excellent outline for the sequence of events. While this outline is not the only way, it gives units "a way" to effectively organize their rehearsals.

The most effective units at the NTC rehearse using their published fighting products (e.g., execution matrix; decision support matrix; target, trigger, location, observer, delivery platform, attack guidance, and communication [TTLODAC]; execution checklist [EXCHECK]; etc.). Using the published fighting products serves several purposes: it familiarizes the subordinate leaders with the documents they will use during the battle period, enhances understanding of unit standard operating procedure (SOP), enables the transition from future operations (FUOPS) to current operations (CUOPS), and serves as a final check before crossing the line of departure. Additionally, the BN fighting products, particularly the execution matrix, helps the BN account for time. As the unit conducts the rehearsal based on the published order, all participants should strive to rehearse actions (e.g., radio calls and simultaneous actions on the terrain board or map) exactly or as closely as possible to how those actions will occur on the battlefield. These actions should include all warfighting functions (WfFs) and emphasize fires, command and control (C2) transitions, and sustainment. The rehearsal must also have a mechanism to consider enemy actions and how they might react to changes on the battlefield.

Meanwhile, the commander and rehearsal director must follow along with the subordinate leaders and enemy forces' actions to rehearse DPs throughout the rehearsal. The commander will pull DPs from the decision support matrix. Once the commander or rehearsal director achieves the intended end state, they must direct that the map or terrain board be reset, and that the unit rehearse all branch plans associated with the future operation (FUOP). After the rehearsal on the terrain board, units should strive to conduct an additional frequency modulated (FM) rehearsal if time allows. FM rehearsals allow units to validate their communications architecture and enable the field artillery (FA) technical rehearsal to synchronize with the maneuver plan.

Regardless of the type or method of rehearsal used, the key to effective rehearsals lies in standardization within the unit SOP. Commanders must codify the unit preparation timeline and develop an executable rehearsal script based on how their units fight in time and space. Once each unit has standardized its preparation timeline and rehearsal script, commanders must direct that their units adhere to their published SOPs. Any deviation from the SOP must be command directed and only acted upon after a unit conducts a formal after action review (AAR). Units' time and effort in developing their unit SOPs and conducting effective rehearsals are directly correlated to success at the NTC.

EXAMPLE REHEARSAL OUTLINE[5]

Step One—Deploy Enemy Forces

a. S-2 briefs current enemy situation.

b. S-2 briefs operational environment.

c. S-2 places markers on the terrain board (or explains previous placement of markers).

d. S-2 briefs most likely enemy course of action (ECOA) based on the operational context.

e. S-2 briefs status of information collection (IC) operations.

Step Two—Deploy Friendly Forces

a. S-3 briefs friendly maneuver unit disposition (including security forces).

b. Commanders brief unit positions and status at the initiation of the rehearsal.

c. Staff briefs status and location of their section elements at starting time (by WfF).

d. As units place their markers, commanders state their task, purpose, task organization, and strength.

e. Sustainment staff briefs position, plans, and action at starting point.

f. Protection staff briefs position, plans, and action at starting point.

g. Executive officer (XO) restates commander's intent (if necessary).

Step Three—Initiate Action

a. XO states first event to rehearse.

b. Commanders and S-2 blue (actions) or red (terrain) initiates action based on who has initiative.

c. S-2 portrays enemy actions and other operational factors and walks through most likely ECOA.

d. S-2 stresses reconnaissance routes; objectives; security force composition and locations; initial contact; initial fires; probable force objective; and likely commitment of reserve forces.

Step Four—Determine a Decision Point

a. After completion of enemy movement or reaction, the XO determines if a DP has been reached.

- If a DP is not met and rehearsal is not at an end state, rehearsal continues.

b. Commander decides to continue with current course of action (COA) or select a branch COA to rehearse (If DP conditions are met).

c. XO moves to next event if commander selects current COA.

d. Commander states reason for branch, first event, and continues rehearsal until all events of branch are complete.

- If additional coordination is required, participants immediately begin coordinating (Recorder captures).

Step Five—Reach an End State

* Rehearsal phase concludes once an end state is achieved.

a. Commander attack: Occurs when unit completes action on the objective (consolidation and casualty evacuation [CASEVAC] complete).

b. Commander defense: Follows decisive action (commitment of reserve and striking force) and CASEVAC complete.

c. Commander stability operation: Occurs when unit achieves the targeted process within designated line of effort.

Step Six—Reset

a. Commander dictates next branch to rehearse once branch rehearsal is complete.

b. XO resets situation to DP where previous branch began and states criteria for next branch.

c. If requirements are met, all rehearse the plan following that branch until desired end state is attained. Recorder captures all coordination's made.

d. Commander directs additional rehearsals on specific events if time permits or standards are not met.

e. Recorder restates any changes, coordination, and clarifications commander directs at the conclusion of the rehearsal.

Endnotes

1. FM 3-96, *Brigade Combat Team*, 19 January 2021, chapter 4.

2. FM 6-0, *Commander and Staff Organization and Operations,* 16 May 2022, chapter 12, para. 57.

3. Ibid, chapter 12, para. 52-60.

4. CALL publication 19-18, *Commander and Staff Guide to Rehearsals: A No Fail Approach*, 2019.

5. Ibid, pages 40-42.

CHAPTER 13

Plans-to-Operations Transition

CPT MASON CASHION

Vignette: The battalion (BN) commander has a headache as they execute their first operation. For this reason, the planner briefs the operation order (OPORD) and also leads the combined arms rehearsal (CAR) during preparation activities using a script prepared by the BN commander. As a result, the battle captain attempts to track the operation and integrate resources to support the BN commander but cannot do so because they do not fully understand the plan and associated triggers. Additionally, the current operations (CUOPs) cell does not fully understand the fighting products developed by the planner, which have already deviated from the executed operation as the BN did not validate them during the CAR.

DOCTRINE

A successful transition from planning to execution requires those charged with executing the order to understand the plan fully. Rehearsals, including confirmation briefings and plans-to-operations transition briefings, help improve understanding of the concept of operations, control measures, decision points (DPs), and command and support relationships (Army Doctrine Publication [ADP] 5-0, *The Operations Process*, 17 May 2012).[1]

The plans-to-operations transition is a preparation activity that occurs within the headquarters. It ensures members of the CUOPs integration cell understand the plan before execution. During preparation, the responsibility for maintaining the plan shifts from the plans integrating cell (or future operations [FUOPs] integrating cell for division and above headquarters) to the CUOPs integration cell. This transition is the point at which the CUOPs integration cell becomes responsible for short-term planning and controlling the execution of the OPORD (ADP 5-0).[2]

A rehearsal is a session in which the commander and staff or unit practices expected actions to improve performance during execution. The brigade (BDE) commander uses rehearsals as a tool to ensure the staff and subordinates understand the concept of operations and the commander's intent (Field Manual [FM] 3-96, *Brigade Combat Team*, 19 January 2021).[3]

FRAMING THE PROBLEM

How does the BN commander ensure an effective transition from plans to CUOPs? This problem is more complex than it seems, as leaders must execute plans and CUOPs simultaneously. From the vantage point of recent observations, the failure to complete the transition is more process-focused than manning-based. Through the process, two common issues prevent the transition between plans and CUOPs.

The first is a failure to manage the BN's higher, operational, planning, and enemy (HOPE) timeline, effectively resulting in missed collaborative and parallel planning opportunities. An effective timeline is the way to pull both the plans officer and accompanying staff into an integrated cell. By doing so, the BN achieves more effective outputs during the planning process, as the plans officer cannot do it alone. Once the team builds the plan, the second issue is the inability to transition from the BN's appointed planner to CUOPs, preventing the planner from leaning forward to the next operation. This failure often occurs during preparation activities at the CAR, which is the traditional plans-to-operations transition point. In a time-constrained environment, the planner is the subject matter expert on the mission about to unfold as the planner is the one that built it. As a result, leadership often hesitates to pull the planner away from the CUOP to plan branches and sequels.

"A WAY"—PLANS TO CUOPS TRANSITION

There are two critical pieces to managing a transition from plans to CUOPs. The first is an accurate and frequently updated HOPE timeline. In this regard, the BN commander dictates roles and responsibilities between the operations and executive officers (XOs) and determines who owns it. Whoever owns the timeline consolidates and publishes on the common operating picture (COP) within the main command post (MCP). Generally, the BN XO will own the timeline. As the planner and staff develop the planning timeline, the XO or operations officer validates it is appropriately nested with other timelines. The XO then time stamps each timeline change made on the COP. Time stamps are date and time groups written on the product's corner, with the validating officer's initials. Additionally, the staff primaries are often pulled to CUOPs to analyze information and provide resources for the commander during an operation. However, they can get assistance from their noncommissioned officers (NCOs) to meet planning timeline deadlines.

The second critical piece is identifying the time and place to begin the transition within the HOPE timeline. Rehearsals are an excellent way to transition from plans to CUOPs. To achieve this, use the time between the BN OPORD and CAR. An effective transition is grounded in the fighting products produced in the planning process. The planner briefs the OPORD and owns product refinement based on leadership's outputs and guidance during the OPORD itself. A common trend at the NTC is 12 to 18 hours between the issuance of OPORD and the CAR. This period allows the planner to make final refinements, sit with the battle captain, and review the fighting products.

The XO identifies the plans-to-operations transition brief from a clear timeline, continuously updated, validated, and disseminated through planning and preparation activities. The planner brings the fighting products they refined after the OPORD. The transition brief is most preferably briefed to the entirety of the MCP but can also be briefed solely to the battle captains. When briefing, be sure to anchor it on the fighting products. One recommendation is to include a transition checklist that consists of fighting products and critical events, such as rehearsals; condition setting and checks; and pre-battle before the line of departure.

Once the brief is complete, the battle captain provides a back brief to the operations or XO to confirm understanding of the operation. With the back brief complete, the operation is now current and in the hands of the battle captain. CUOPs may further consolidate their understanding of the plan by driving the CAR using the fighting products, thus validating what the BN is fighting off. After the conclusion of the CAR, another rehearsal to implement is an MCP rehearsal, which will validate the staff's understanding of the operation and capture command and control (C2) transitions.

The above transition point may not seem feasible if a BN has untrained battle captains (potentially lieutenants), as BN leadership may not have confidence in them. A recommendation to combat this issue is the standardization of fighting products within the BN standard operating procedure (SOP) that clearly defines where and when events happen during an operation. The synchronization matrix (SYNCHMAT), with clearly defined timelines and triggers for the totality of an operation, will assist an untrained battle captain in managing the fight. If anything, at least the battle captain will have oversight from the XO in the MCP, a mechanism to mitigate potential issues. It is more important for the planner to plan.

In essence, an effective plan to CUOPs transition requires a clear timeline, a formal transition anchored on the fighting products, and validation through preparation activities and execution at the CAR. More importantly, if BN leadership accepts the above methods, they must formally standardize them in the unit SOP and share them across warfighting functions (WfF) to maximize planning outputs. Fighting products are essential as everyone fights using the same documents, from the BN and company commanders to the battle captain.

Endnotes

1. ADP 5-0, *The Operations Process*, 17 May 2012.

2. Ibid.

3. FM 3-96, *Brigade Combat Team*, 19 January 2021.

CHAPTER 14

Empowering the Air Mission Commander

CPT SEAN MCMANUS

Vignette: A Stryker brigade combat team (SBCT) is one of the first units deployed to support a combined joint task force (CJTF). The brigade (BDE) has been granted tactical control (TACON) of a company of AH 64s for the initial advance into their assigned area of operations (AO). The enemy situation is unclear. The BDE leadership tasks the attack aviation company to conduct a movement to contact (MTC) through a key ridgeline in support of the lead ground maneuver element. Upon reaching their limit of advance (LOA), the AH 64s are to establish a screen observing north to identify enemy armor advancing toward the friendly formations through a pass in the ridgeline. The aircrews locate a platoon of irregular enemy forces supported by three Boyevaya Razvedyuatel'naya Dozornaya Meshina (BRDMs/Russian combat reconnaissance patrol vehicles) in the vicinity of (IVO) a small village while completing the MTC. The flight operates over 15 kilometers (km), several terrain features away from the nearest BDE ground unit when contact is made, and the air mission commander (AMC) has only intermittent over the horizon communications via Blue Force Tracker (BFT). The operation order (OPORD) disseminated to the aircrews only contained vague actions to be performed on contact. Unable to receive refined guidance in a timely manner, the AMC decides to destroy the irregular forces near the small village and the flight becomes decisively engaged by small arms and SA-24s. Preoccupied with a small irregular force, the Apaches never establish the screen. As a result, they are not in position to detect a column of T 90s that closes with the BDE, resulting in heavy friendly casualties.

FRAMING THE PROBLEM

No plan survives first contact with the enemy. Yet, after over two decades of war in Iraq and Afghanistan, Army aviation units find themselves unpracticed at retaining flexibility against a near-peer adversary. Central to this issue is a reluctance to delegate decision authority through the tenets of mission command. Whether it be because of ambiguous mission orders, a lack of trust between leaders and their subordinates, an unwillingness to accept necessary tactical risks, or an overly constrained maneuver area, there are many obstacles preventing AMCs from exercising disciplined initiative within the commander's intent. These deficiencies must be corrected before Army aviation's full potential can be realized.

DOCTRINE

The following publications provide detailed guidance pertaining to the effective planning for, and implementation of, Army aviation:

- Army Doctrine Publication (ADP) 6-0, *Mission Command – Command and Control of Army Forces,* 31 July 2019.
- Field Manual (FM) 3-96, *Brigade Combat Team*, 19 January 2021 (Chapter 4).
- Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Battlefield*, 1 March 2019.
- Joint Publication (JP) 3-52, *Joint Airspace Control*, 31 December 2021 (Chapters 3 and 4).
- Field Manual (FM) 3-52, *Airspace Control,* 20 October 2016 (Chapters 3 and 4).

"A WAY"—EMPOWERING THE AMC

The following discusses three ways to empower the AMC:

1. Issue detailed and adaptable orders.

Too often, Army aviation is managed like a fires asset or an outside enabler as opposed to how it is designed to be implemented—as a maneuver element. Rather than a close air support (CAS) asset, Army aviators are trained to integrate within the ground force's operational plan and can release ordinance independently without joint terminal attack controller (JTAC) or forward air controller (FAC) clearance. Moreover, whereas the body of BDE mission orders consistently contains paragraphs of detail discussing the ground force scheme of maneuver, the information passed to the aviation task force (AVTF) commonly consists of a single line.

Unclear tasks do not facilitate decentralized leadership. Unclear tasks also prevent the AMC from operating with autonomy. Effective contingency planning becomes impossible when aircrews do not possess guidance or an understanding of how the aviation mission can support the ground force. A lack of common graphics between the BDE and the AVTF causes confusion, making it difficult for attack aviation to visualize the tactical plan in time and space. These factors will result in the air mission commander becoming reliant on communication with the BDE leadership as soon as any friction is encountered during execution, which will slow their reaction time and potentially overwhelm the communications architecture.

Appropriately drafted aviation mission orders must emphasize the results to be attained but not limit how those outcomes are achieved unless it is necessary for proper integration.[1] At a minimum, orders must include the following information when tasking aviation units:

- Task and purpose presented through a clear and concise mission statement.
- A well-developed event template and event matrix, which contain named areas of interest (NAIs) and target areas of interest (TAIs) that are tied to specific priority intelligence requirements (PIRs) and feed the decision support matrix.[2]
- Commander's reconnaissance guidance for reconnaissance tasks.
- An information collection matrix that includes specific information requirements (SIRs), indicators, and the last time information is of value (LTIOV).
- Commander's security guidance for security tasks.
- Engagement, disengagement, bypass, and displacement criteria that can be discerned by aircrews during execution.
- Triggers, ideally enemy based for attacks and security missions, which enable aircraft to arrive on station at the decision point (DP).
- Destruction, neutralization, or suppression criteria that identifies specific vehicles and systems for attack missions.
- Desired actions after contact for movement to contact missions.

2. Establish mutual trust.

The foundation of any command relationship is trust. ADP 6-22, *Army Leadership and the Profession,* 31 July 2019, lists trust as a core competency of leadership and states, "Trust enables the ability of leaders to influence subordinates and effective[ly] command and control."[3] These facts are further emphasized when coordinating with Army rotary-wing aviation because of its unique capabilities and the distances at which flight crews operate from other friendly forces. However, this is not what is routinely witnessed at the National Training Center (NTC) during rotations.

Currently, there is a lack of common understanding between ground forces and the aviators who support them. This frequently leads to skepticism. Strong leaders do not generally delegate authority unless their subordinates have demonstrated tactical competency and sound judgment, so it is understandable for a commander to have trepidations when working with unfamiliar aviation units.[4] Aircraft operate in a different medium than wheeled or tracked vehicles and possess a different perspective. They are capable of speeds, ranges, agility, and endurance levels that are different from ground-based units. These differences are best bridged through early communication, regular face-to-face touch points, and the thorough incorporation of liaisons. However, these solutions are only effective if each party is committed to building a relationship of trust with the other. For example, a liaison who does not possess the appropriate credentials will only drive a wedge further between the BDE and the AVTF. Similarly, experienced aviators will become frustrated and disheartened if they believe that their guidance is habitually ignored without cause.

The effect of not seeing eye-to-eye permeates through the chain of command and can be seen in the cockpit during execution. AMCs will become hesitant to make timely decisions based solely on their own assessment of the complex and ever-changing combat environment. This is especially true when aircrew observations veer from what is expected or when the ground unit retains strict control over the aircraft while on station. A leading contributor to indecision is the fear that choices will be scrutinized by superiors who do not fully understand the facts, assumptions, limits, and constraints that shape the decisions. AMCs are more inclined to exercise initiative when they believe their chain of command trusts them and will support the outcome of their actions.[5] To correct the issues listed, the following steps should be taken:

- BDE and AVTF planners must understand the fundamental differences between aviation and ground operations.
- Establish frequent, ideally daily, touch points between the AVTF and BDE leadership and planners.

- Designate only the most competent individuals from the AVTF to embed in the brigade aviation element (BAE) as liaisons to facilitate greater buy-in and communication.
- Request a desired end state or effect from the AVTF and require the aviation planners to provide various courses of action (COA) for how to accomplish the mission at the COA development briefing.

3. Maximize freedom of maneuver through the airspace plan.

Even the most empowered AMC with well-defined mission orders may be rendered useless when forced to operate within highly restrictive airspace. As with any other maneuver asset, aircraft are most capable when they can move relatively unencumbered across the battlespace. Unlike ground units, the majority of obstacles faced by aircrews have been emplaced by their own leadership in the form of a poorly constructed and inadequately controlled unit airspace plan (UAP).

Airspace control increases operational effectiveness by promoting safe, efficient, and flexible use of the airspace while minimizing restraints on its users. Airspace coordination measures (ACMs) and fire support coordination measures (FSCMs) cannot be indiscriminately emplaced throughout the AO. Instead, they must be well thought out so that they remain viable across multiple contingencies without instigating unnecessary frictions or introducing excessive complexity.

Airspace control is not static. Rather airspace control planning must change with each phase of the operation, but this practice is rarely adhered to at the NTC. Rather than collecting feedback from airspace users about the viability of past coordination measures so that improvements can be submitted each day, the UAP during most rotations remains virtually unaltered from D-day to continue the mission (CTM). The placement of ACMs and FSCMs must be adjusted to nest with updated ground force positions and objectives or risk becoming obsolete.

Finally, the speed of war requires near real-time airspace control through a cycle of continuous assessment.[6] It is important for commanders who possess airspace control authority to emphasize the activation and deactivation of airspace through the tactical airspace integration system (TAIS) and to designate individuals responsible for coordinating with airspace users so that they can transition unhindered across the battlefield. Therefore, when creating an airspace plan, emphasis should be placed on the following areas:

- Create an in-depth UAP. Develop airspace that supports operations 72 hours out rather than focusing only on the airspace required for the next day.
- Build a BDE communications architecture with a dedicated net for real-time coordination between aviation assets and the BAE during execution.
- Implement a daily airspace working group within the BDE battle rhythm to manage the airspace coordination order as a living document. Recommend the following attendees: the operation officer, BDE aviation officer, fire support officer (FSO), AVTF liaison, and a representative from the unmanned aerial system (UAS) platoon(s), at a minimum.
- Minimize restrictions to airspace so that aircraft may retain the greatest freedom of maneuver.
- Use airspace coordination areas (ACAs), standard-use Army aircraft flight routes (SAAFRs), and other ACM and FSCMs to de-conflict fires and create shared understanding between the BDE and airspace users.

Tactical Decision Making Exercise: Referencing the original vignette, draft a mission order for the Apache troop that will enable the AMC to better understand the needs of the BDE commander and exercise disciplined initiative. Once complete, discuss what airspace may be required to enable successful execution in a degraded communications environment.

Endnotes

1. ADP 6-0, *Mission Command – Command and Control of Army Forces*, 31 July 2019, chapter 1.

2. ATP 2-01.3, *Intelligence Preparation of the Battlefield,* 1 March 2019, chapter 6.

3. ADP 6-22, *Army Leadership and the Profession*, 31 July 2019.

4. ADP 6-0, *Mission Command – Command and Control of Army Forces*, 31 July 2019, chapter 1.

5. Ibid.

6. FM 3-52, *Airspace Control*, 20 October 2016, chapters 2-10.

CHAPTER 15

Emission Control

MAJ EDGAR A. CEBALLOS

Vignette: In the upcoming mission, the brigade (BDE) commander has emphasized the use of cover and concealment among all elements, including using camouflage netting at long halts for all equipment. The commander has also provided guidance for stealthy and deliberate maneuver with bounding overwatch and frequent position adjustments at long duration observation posts (OPs) to minimize the probability of detection by enemy forces. Despite these measures, the enemy seems to be having little difficulty in effectively targeting command posts and maneuver elements with indirect fires. In frustration, the commander asks for more frequent and thorough reports from the battalions (BNs), to accurately assess the current situation.

FRAMING THE PROBLEM

The past two decades of war have conditioned the Army to take electromagnetic spectrum (EMS) superiority for granted, but this is not the case against a near-peer adversary. Our military has made great technological advances with communications and navigation systems, as well as in the proliferation of this equipment, but the same can be said of signal intelligence (SIGINT) and electronic warfare (EW) systems in the inventory of near-peer adversaries. The more the Army leverages electromagnetic (EM) battle management to facilitate all-domain command and control (C2), the more data is provided to the enemy to track Army maneuvers. "Movement" in the EMS paints a picture of movements across all domains.

DOCTRINE

The control of friendly EM emissions is essential to successfully defend against enemy attempts to destroy or disrupt communications. Electromagnetic control (EMCON) is the selective and controlled use of EM, acoustic, or other emitters to optimize C2 capabilities while minimizing (for operations security) the following:

- Detection by enemy sensors.
- Mutual interference among friendly systems.
- Enemy interference with the ability to execute a military deception plan.

(Joint Publication [JP] 3-85, *Joint Electromagnetic Spectrum Operations,* 22 May 2020.)[1]

Disciplined EMCON is essential to preventing the threat from distinguishing deception activities from the main effort (JP 3-85, para III/3/h/[3])[2] and protects friendly maneuver and strike elements from enemy intelligence collection (JP 3-85, para III/3/n/[3]).[3] With less emissions available to detect, adversarial signal collection systems have less fidelity to facilitate tipping and cueing to other ground-based or overhead collection assets.

It is important to note that EMCON is not only relevant to military equipment (both program-of-record and operational needs statement [ONS] equipment), but also to any commercial-off-the-shelf (COTS) equipment and personal electronic devices (PEDs), such as Wi-Fi pucks and cell phones. Lastly, it must also be emphasized that radio frequency emissions do not emanate only from communications equipment but also from less obvious equipment, such as unmanned aerial systems (UAS), radars, and even improperly grounded generators.

These radio frequency emissions should be given as much planning consideration and minimization enforcement as is given to light, noise, and thermal emissions (which also often do not receive the level of discipline that they require).

"A WAY"—EMCON TTPS

A highly effective technique that BDE and BN staff can use to execute EMCON is to have pre-defined EMCON levels, each of which has associated actions (restraints or constraints). The following table (Table 15-1) provides recommended EMCON level statuses modeled after the information conditions operations (INFOCON) levels used in the Department of Defense (DOD). It can also be found in Center for Army Lessons Learned (CALL) publication 20-17, *Warfighter's Guide to Electronic Warfare,* 2020.

Table 15-1. EMCON Level Statuses (Center for Army Lessons Learned [CALL] publication 20-17, *Warfighter's Guide to Electronic Warfare,* 2020)[4]

EMCON Level	Status Description
EMCON 5	No apparent hostile activity against friendly emitter ops. Operational performance of all EMS-dependent systems is monitored, and password-encryption-enabled systems are used as a layer of protection.
EMCON 4	Increased risk of attack after detection. Increased monitoring of all EMS activities is mandated, and all DOD end users must make sure their systems are secure, encrypted, power levels monitored, and transmissions limited. EMS usage may be restricted to certain emitters, and rehearsals for elevated EMCON is ideal.
EMCON 3	Risk has been identified. Counter-ECM (encryption, FH, directional antennas) on important systems is a priority. EWO's alertness is increased. All encrypted systems are disconnected.
EMCON 2	Describes when an attack has taken place, but the EMCON system is not at its highest alertness. Non-essential emitters may be taken offline, alternate methods of communication may be implemented, and modifications are made to standard lower EMCON configurations (e.g. power levels and antenna types).
EMCON 1	Attacks are taking place based on the use of the EMS. The most restrictive methods of EP are enforced. Any compromised systems are isolated from the rest of the network.

As per Army Techniques Publication (ATP) 3-12.3, *Electronic Warfare Techniques,* 16 July 2019,[5] the S-6 (communications) prepares the restricted frequency list and issuance of EMCOM guidance and should therefore be the lead proponent for development of this table. In addition, the primary, alternate, contingency, emergency (PACE) plan should complement the EMCON table by facilitating a seamless and logical transition between levels.

According to JP 3-85,[6] EMCON includes actions to assess threat signal detection capabilities against friendly forces. Therefore, the S-2 (intelligence and security) and BDE cyber electromagnetic activities (CEMA) cell should work together through intelligence preparation of the battlefield (IPB) to ensure that the enemy's electronic order of battle (EEoB) is as refined as possible. The S-2 and BDE CEMA cell can then use these products to help the S-6 determine the most appropriate courses of action (COAs) for EMCON (by task and phase) based on the templated enemy EW disposition and capabilities (or lack thereof).

Another specified EMCON action is to nominate threat signal collection systems for targeting. As the old saying goes, sometimes the best defense is a good offense. Few maneuver commanders will argue that reducing the usage of C2 systems is preferred to simply destroying the adversarial assets that can detect emissions.

In addition to using standardized EMCON levels, other tactics, techniques, and procedures (TTPs) can be implemented at all echelons within a BDE. Minimizing the length and frequency of radio transmissions should be the desired end state. To achieve this, proper radio etiquette must be practiced and enforced. This includes planning efficient messages and reports before sending; using brevity codes and prowords; and employing radio silence to the maximum extent possible (i.e., refraining from unnecessary transmissions, especially idle chatter) (ATP 3-12.3, Ch. 7).[7]

Understanding the concept of line-of-sight communications systems is also key to reducing the enemy's ability to detect and locate Army elements without necessarily requiring those elements to reduce system usage. Terrain masking and directional antennas can be employed to enable this.

Lastly, visual signals should be employed when appropriate (pyrotechnics, hand and arm signals, etc.). All visual signaling methods should be standardized in the BDE tactical standard operating procedures (TACSOP) so that there is no confusion between subordinate units. Although many hand and arm signals are standardized Army-wide for most uses (Training Circular (TC) 3-21.60, *Visual Signals*, 17 March 2017),[8] pyrotechnic signaling must be developed at the BDE level (if not already defined at higher echelons). To be second nature, these must also be rehearsed and exercised at all echelons. Trying to find and flip through an SOP in the middle of a battle will not result in the desired outcome.

VIGNETTE REWIND

After an in-depth pre-deployment reverse IPB session between the S-2 and CEMA cell, the EEoB is established. Based on the enemy system capabilities and templated employment, an appropriate EMCON level matrix is developed, which depicts actions to be taken for each EMCON level (Shown below in Table 15-2).

Table 15-2. EMCON Level Matrix (CALL publication 20-17, *Warfighter's Guide to Electronic Warfare,* 2020)[9]

EMCON Status	Protocol to Enforce	Reporting	Power Transmission	Systems Utilized	Systems Avoided	Radar Postures	Antennas	Essential Reports
5	Monitor communications	Communications authorized on un-encrypted platforms	Power amp authorized away from FLOT; retrans as needed for operations	BFT, upper TI, lower TI, FH PT, FH CT, TACSAT, HF, commercial cellular systems, radars, UASs	N/A	N/A	Any can be utilized	Any
4	Ensure communications are encrypted	Send and receive all reports utilizing proper reporting formats through encrypted communications	PA authorized no closer than 5km from BCT FLOT; retrans as needed for operations	BFT (not within 10km of FLOT), upper TI, lower TI, FH PT, FH CT, TACSAT, HF, commercial cellular systems, radars, UASs	Un-encrypted, very high power	Active 50% Passive 50%	Not to exceed 50dBi gain	SPOTREP, SALUTE, PERSTAT, LOGSTAT, MEDEVAC, equipment slant
3	Evaluate units for masking and limiting power	Essential reports submitted through encypted communications only	PA authorized no closer than 10km from BCT FLOT (PA not advised); retrans as needed for operations	BFT (not within 20km of FLOT), upper TI, lower TI, FH PT, FH CT, TACSAT, HF, commercial cellular systems, radars, UASs	Un-encrypted, very high power, omni-directional antennas, antennas that can't be masked	Active 40% Passive 60%	Not to exceed 25dBi gain; must be masked with terrain or environment	Essential SPOTREPs, SALUTE, PERSTAT, LOGSTAT, MEDEVAC, equipment slant
2	Cease all non-essential transmissions and communications, or use alternate navigations means	Essential reports submitted through encrypted communications only; omit portions of reports that are non-essential	PA authorized no closer than 20km from BCT FLOT (PA not advised); retrans as needed for operations	Upper TI, FH CT, HF, passive radars	Un-encrypted, very high power, omni-directional antennas, antennas that can't be masked, single channel, commercial	Active 20% Passive 80%	Not to exceed 25dBi gain; must be masked with terrain or environment; must be offset by a minimum of 200m	SPOTREP, SALUTE, MEDEVAC
1	Communications silence	Communications silence	Communications silence	Communications silence	Communications silence	Communications silence	Communications silence	Comms silence

The matrix is published in annex H of warning order (WARNORD) 1, giving ample time for subordinate units to rehearse its usage. Upon deployment, BDE S-6 sets the EMCON level to 3. All systems have received their crypto fills. Radio telephone operators (RTOs) have their brevity code cheat sheets on hand; all operators know to keep the nets clear save for the dictated essential reports; and power amps are off. The S-6 shops have ensured the use of terrain masking and directional antennas at all command posts, and radar operators are at a 60 percent passive scan posture. As the lead BNs conduct their movement to contact, enemy indirect fire contact is random and ineffective. The decisive operation unit seizes the objective with little resistance. The enemy seems caught off guard and unable to coordinate an effective defense.

The EMS must not be overlooked to dominate opponents on the multi-domain battlefield. It allows units to synchronize maneuvers and effects across all domains effectively when used responsibly. Practicing good EMCON techniques is a relatively simple yet highly effective process vital for force protection and freedom of action.

Endnotes

1. JP 3-85, *Joint Electromagnetic Spectrum Operations*, 22 May 2020.

2. JP 3-85, *Joint Electromagnetic Spectrum Operations*, 22 May 2020, para III/3/h/[3].

3. Ibid.

4. CALL publication 20-17, *Warfighter's Guide to Electronic Warfare*, 2020.

5. ATP 3-12.3, *Electronic Warfare Techniques*, 16 July 2019.

6. JP 3-85, *Joint Electromagnetic Spectrum Operations*, 22 May 2020.

7. ATP 3-12.3, *Electronic Warfare Techniques*, 16 July 2019, chapter 7.

8. TC 3-21.60, *Visual Signals*, 17 March 2017.

9. CALL publication 20-17, *Warfighter's Guide to Electronic Warfare*, 2020.

CHAPTER 16

The Hand Off—Mastering the Passage of Lines

CPT DAVEY AND CPT URIBE

Vignette: During a National Training Center (NTC) rotation, on training day one, a cavalry troop executed a screen oriented to the west at the mouth of Bicycle Lake Pass with a combination of mounted and dismounted observation posts (OPs). Enemy units were observed in the area northwest of the troop near Brigade Hill. The brigade (BDE) decided to pass a tank company from an adjacent battalion (BN) through the troop to engage and destroy the identified enemy units. Without acknowledging the complexity of the passage, the BDE did not identify a headquarters or mission command node to oversee the transition. As a result, no graphic control measures (GCMs) or additional unit boundaries were created. Furthermore, limited leadership oversight from the squadron left ambiguity on the scheme of maneuver and direct fire or maneuver control measures. There was confusion about who was in charge, at what point the passing tank company would assume the fight, and what displacement criteria were for the cavalry troop. After notification from their respective higher headquarters, the troop and tank company commanders developed hasty GCMs through the joint battle command platform (JBCP) to facilitate the forward passage of lines (FPOL). On linkup, the tank company commander met with one of the cavalry troop's platoon leaders, who served as the troop's representative on the ground. The platoon leader explained the enemy situation as they understood it, including where the enemy was last observed by their platoon, as well as the assessed enemy disposition and composition.

Following the hasty link-up, the tank company continued through the troop's screen to complete the FPOL. Shortly after turning north from Bicycle Lake Pass toward Brigade Hill, the tank company's lead tank observed a single armored vehicle in a static position and reported it to the company commander. The tank company commander's understanding was that their element was entirely forward of all friendly units and only enemy elements existed to the north. Accordingly, the tank company began to engage vehicles north of their lead element and destroyed the aforementioned vehicle. However, what was identified as an enemy vehicle was a friendly mounted OP from the troop being passed. This fratricide incident resulted in the multiple integrated laser engagement (MILEs) destruction of one friendly vehicle and the (simulated) death of three Soldiers in the vehicle (see Figure 16-1).

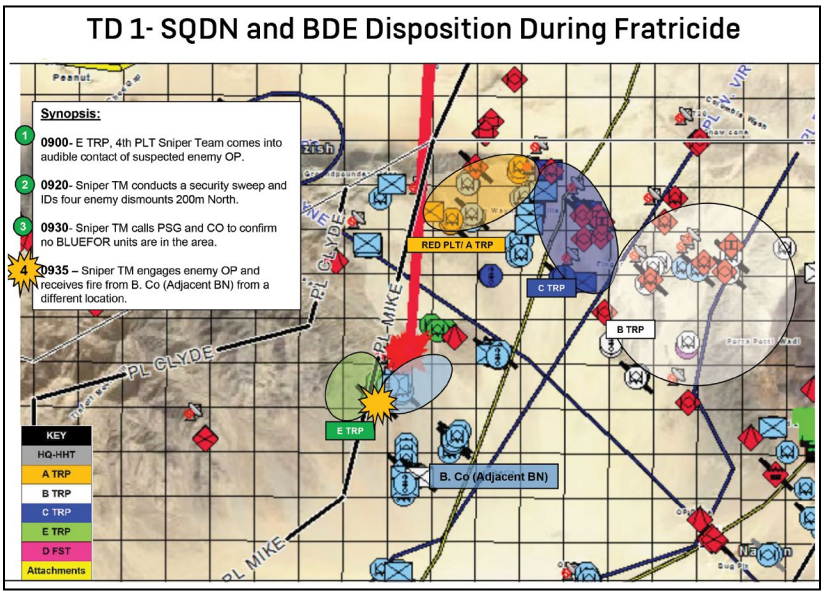

Figure 16-1. A Fratricide Incident (Operations Group, National Training Center)[1]

FRAMING THE PROBLEM

Transitions often represent periods of great risk-to-force and risk-to-mission. For a cavalry squadron, passages of lines and battle handover are the most often used transition between the squadron and adjacent BNs. A well-executed passage of lines is paramount to minimize the risk to all involved, maintain tempo during transitions on the battlefield, and ultimately enable the achievement of the decision point (DP). A well-executed passage of lines includes adequate planning, coordination between units, common procedures, direct fire, indirect fire, passage of lines GCMs, and a plan for command and control (C2).

Based on observations of cavalry squadrons at the National Training Center (NTC) between January 2021 and December 2021, only 20 percent of forward and rearward passages of lines (RPOL/FPOL) are conducted to standard per Field Manual (FM) 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, 22 March 2013.[2] The key observed shortfalls in planning and execution are advance coordination; shared graphic and direct fire control measures; shared understanding of battle handover and displacement criteria; and establishing command posts to maintain C2 throughout the operation.

Several of these shortfalls can be observed in the above vignette. At the outset, the FPOL was not planned or rehearsed. Before the linkup, there was no common understanding of where adjacent units should be, near or far recognition procedures, or a passage lane. The platoon leader conducting the link-up understood their platoon situation but not the overall troop situation. They could not share accurate, friendly unit locations, or common graphics, including the passage lane, passage point, or battle handoff line. The tank company commander left the link-up with a flawed understanding of the friendly situation and issued incorrect guidance to the company. All command posts, from the BDE to the troop level, pushed the responsibility for the passage of adjacent units to a platoon leader without providing the needed coordination measures or placing a command node at the point of friction. These factors contributed directly to the simulated fratricide incident.

DOCTRINE

Per Army Doctrine Publication (ADP) 3-90, *Offense and Defense,* 31 July 2019, a passage of lines "is an operation in which a force moves forward through another force's combat positions with the intention of moving into or out of contact with the enemy. A passage of lines may be designated as a forward or rearward passage of lines."[3] Per FM 3-98, *Reconnaissance and Security Operations*, 1 July 2015, a reconnaissance handover is the "process of transferring information and responsibility from one element to another to facilitate observation of a specific target, enemy, or an assigned named area of interest (NAI)/target area of interest (TAI)."[4]

FM 3-90-2, chapter 5, covers passages of lines in depth. It includes many key insights on coordination measures that should be conducted to facilitate an effective passage of lines. Upfront, the higher headquarters directing a passage owes subordinate units the following:[5]

- Subsequent missions for both forces.
- When and under what conditions passage of command takes place.
- Start and finish times for the passage of command.
- Contact points between the units involved.
- Common maneuver control measures and graphics.

FM 3-90-2 recommends that adjacent units co-locate command posts to plan the passage of command, and if that is not possible to conduct extensive liaison. Some coordination that must be discussed are:[6]

- Current friendly dispositions and tactical plans, especially military deception and obstacle plans.
- Direct and indirect fires and close air support (CAS) plans.
- When and under what conditions control of the area of operations (AO) transfers from one headquarters to the other.
- Provisions for movement control, including contact points; start and release points; primary and alternate routes; route selection; priorities for using routes and facilities; passage points; and provision for guides.
- Signal operating instruction details, such as call signs, frequencies, and recognition signals.
- Air defense cover—up to and forward of the battle handover line (BHL).
- Logistics support for the passing unit provided by the stationary unit, especially fuel, maintenance, and medical treatment.

Doctrine identifies eleven control measures needed at a minimum to conduct an effective passage of lines: the AO, assembly areas (AAs), attack positions, BHL, contact points, passage points, passage lanes, routes, gaps, phase lines (PL), and recognition signals. Additionally, FM 3-90-2 notes, "Unless the higher headquarters of the two units establishes the necessary GCMs, the stationary unit establishes them for the passage. However, the stationary unit commander coordinates them with the passing unit commander…If the control measures dictated by the higher headquarters are not sufficient—because they do not contain enough passage points, lanes, and so forth—the two units can agree to add the necessary measures."[7]

Doctrine provides a solid foundation for any unit beginning to plan a passage of lines. To enable effective execution, a detailed plan must be developed and shared across echelons, and finally rehearsed to ensure common understanding.

"A WAY"—PLANNING A PASSAGE OF LINES

When planning these transitions, the higher headquarters should ensure that all warfighting functions (WfF) are addressed and planned for. Fires, sustainment, and protection are often not coordinated and create unnecessary friction.[8] Once a course of action (COA) is planned, the higher headquarters needs to define the triggers and criteria that feed them, focusing on what initiates the transition and taking the mission, enemy, terrain, troops available, time, and civilian considerations (METT-TC) in relation to the units in transition. Ideally, this can be captured on the already existing synchronization matrix (SYNCHMAT) and, if time allows, include alternate COAs and branch plans should conditions change. Next, whenever possible, the passage of lines needs to be managed at least one echelon higher than the units conducting it. As an example, if a combined arms battalion (CAB) is conducting a forward passage of lines through their adjacent cavalry squadron, the parent BDE needs to oversee and control the process.[9]

In the absence of a higher headquarters element, the unit establishing the passage lanes should retain control of the operation until the passage is complete. This is critical when the enemy disrupts plans or other conditions change and the plan needs to be adjusted.[10] Most importantly, transitions need to be rehearsed. This starts during the military decision-making process (MDMP) and occurs during a combined arms rehearsal (CAR), a separate passage of lines rehearsal, or even an impromptu radio rehearsal.[11] Every opportunity to mitigate friction and errors during these transitions needs to be maximized to keep organizations safe and maintain the unit's tempo.

Common graphics and a shared understanding of GCMs must be in place and consistent across all involved units down to the individual squad and vehicle. Especially important to GCMs are clearly defined unit positions, passage lanes, BHLs, passage points, and release points. Additionally, a communications plan consisting of primary, alternate, contingency, and emergency (PACE) methods are established to accommodate all systems that will conduct the transition.[12] As an example, if some of the units conducting the passage are dismounted squads, the joint battle command platform (JBCP) will not be suitable as they will have no access to it, requiring up-to-date analog graphics.

Leader placement before, during, and after any passage of lines is critical to executing a successful operation. The unit or headquarters managing the passage should consider placing a command node or key leader (i.e., the BDE tactical operations center [TAC] or BDE S-3) with the stationary unit's command post to maximize control and streamline the flow and handoff of information and intelligence as the operation is conducted. Key leaders, such as the senior platoon leader, must be placed at the linkup point and passage point(s) and prepared to guide the passing unit through the established lane(s) up to the release point.[13]

Enablers are often forgotten about, and the hand-off of their support or the change in their support relationship is not codified in an existing plan. This can result in a lack of accountability, or worse, a fratricide incident, if they are left unaccounted for.[14] The most common of these are a unit's indirect fires, CAS, and Army attack aviation. Additional assets, such as unmanned aerial systems (UAS), air defense, and any electronic warfare (EW) units, must be planned for. During an FPOL, the BDE or other parent unit should assume control of the fight beyond the BHL during the passage. The transition of responsibility beyond the BHL belongs to the passing unit as soon as their lead elements cross the BHL.[15]

A lack of detailed planning at all echelons and limited rehearsals will lead to a hastily executed transition, potentially with deadly results. Fortunately, at the NTC, these instances are valuable lessons learned for all involved with no loss of life and help instill the importance of thorough planning, deliberate rehearsal, and effective execution.

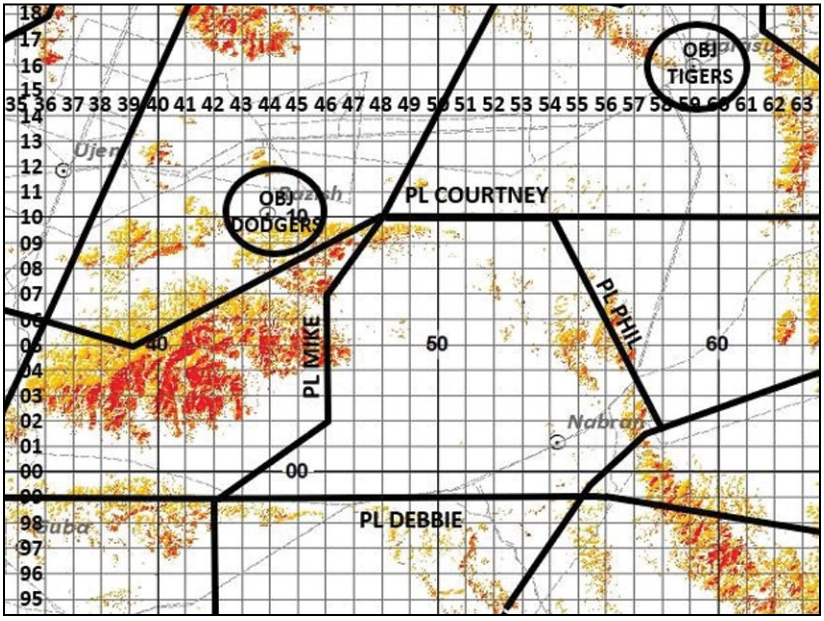

Figure 16-2. Tactical Decision Exercise Training Aid (Operations Group, National Training Center)[16]

Tactical Decision Making Exercise: A cavalry squadron has established a screen to provide security and early warning for a CAB. Once conditions are met, the CAB will conduct an FPOL through the troops, or the troops will conduct an RPOL through the CAB. Use the graphics above (Figure 16-2) to establish a passage of lines plan. Ensure you identify a trigger or DP for passage. What will your link up procedures look like and how will they nest with your unit's PACE plan? Who will be in charge at your link up point? Make sure the plan includes a link up point, a passage point, a BHL, and a release point at a minimum. These graphics will be what allows these units to safely conduct this entire process.

The screen is currently established along PL COURTNEY oriented north. PLs MIKE and PHIL are your east and west boundaries, respectively. The CAB is currently located in vicinity of PL DEBBIE, preparing to conduct their movement north toward your screen. The BDE S-2 has a template of company of enemy T-90s and a company of BMP-2s located in objective (OBJ) TIGERS and a platoon of BMP-2s on OBJ DODGERS.

Endnotes

1. Operations Group, National Training Center.

2. FM 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, 22 March 2013.

3. ADP 3-90, *Offense and Defense*, 31 July 2019.

4. FM 3-98, *Reconnaissance and Security Operations*, 1 July 2015.

5. FM 3-90-2, chapter 5.

6. Ibid.

7. Ibid.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid.

12. FM 3-98, *Reconnaissance and Security Operations*, 1 July 2015, 5-22.

13. FM 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, 22 March 2013.

14. Ibid.

15. Ibid.

16. Operations Group, National Training Center.

CHAPTER 17

Massed and Responsive Fires

CPT MICHAEL MULLIGAN

Vignette: It is the moment immediately before the breach that the battalion (BN) is moving into their attack positions and sends up obscuration and suppression missions in a do not load (DNL) status to the brigade (BDE) fires cell, confident in their status as the main effort. 20 minutes later, with all forces in position, they are still waiting on the mission. Finally, one hour after the maneuver forces are in position, they are notified that their missions are laid. By this point, the opposing force (OPFOR) is fully prepared for the breach and both missions have minimal effect. The BN commander wonders with frustration if they would have been more successful conducting the breach without waiting for fires. As it turns out, the delay in fires was because of a separate fires commitment to a movement to contact mission by a supporting effort. The fires component was unable to support both missions. The overlap in mission had not been identified in planning, resulting in the early commitment of the BDE's field artillery (FA) BN to the supporting effort at the expense of the main effort.

FRAMING THE PROBLEM

BDE and BN commanders may have unrealistic expectations that every axis of advance, defensive battle position, or breach will have fire support (FS) regardless of the main effort. To adequately support various maneuver requirements, BDE fires cells plan many battery-level targets that are only supportable with a strict separation of time that does not occur in practice. Using multiple battery targets also dilutes the effectiveness of fires by reducing mass while simultaneously resulting in the BDE retaining control over fire assets to allow it to pivot them as needed from one axis or position to the other. And all of this occurs at the expense of effectively targeting enemy high payoff targets (HPTs).

The result is that from the maneuver perspective, fires both over-promises and under-delivers. From the targeting perspective, FS maneuvers at the expense of delivering against enemy key assets in the deep fight. And from a fires perspective, the demands of both keeps it from being able to mass and deliver sufficient tonnage of shells to have a good effect on the target.

DOCTRINE

According to Army Doctrine Publication (ADP) 3-19, *Fires*, 31 July 2019, par 2-6,[1] the commander is responsible for the integration of fires within the area of operation (AO). This places the burden of identifying the decision point (DP) for the massing and usage of fires on the commander and their intent, though the commander is advised by other leaders. Following this identification, the plan should be conceived using the three characteristics of FS: "To violently apply lethal fires in accordance with the law of war and established rules of engagement (ROE), to always operate in the spirit of the offense, and to always operate as a single entity." (Field Manual [FM] 3-09, *Fire Support and Field Artillery Operations,* 30 April 2020).[2]

As FM 3-09 expresses, the fires enterprise should be firing early, aggressively, and with the massing of as many systems and capabilities as possible against enemy HPTs. FM 3-09 par 1-24 further expresses the principles of FS planning to enable these characteristics. Two of these principles, "use the lowest echelon capable of furnishing effective support" and "provide adequate support," provide a clear path to delivering timely and accurate fires. FM 3-09 also provides a memory aide about the principles of FS execution that can help in delivering timely and accurate fires: "AWIFM-N (adequate fire support for committed units, weight to the main effort or decisive operation, immediately available fire support for the commander to influence the operation, facilitate future operations, maximum feasible centralized control—primarily in the defense, never place artillery in reserve)."[3]

Doctrine thus expresses that fires should use the lowest echelon, be responsive, and be allocated in such a manner that the weight of the fires enterprise, operating as a single offensive entity, is allocated to the DP identified by the maneuver commander.

To understand this, it is necessary to define "using the lowest echelon." While it is commonly understood and practiced using the lowest echelon of actual firing system (mortars versus cannons versus close air support [CAS]), that is not the only thing doctrine is examining. The lowest echelon is a principle of FS, which Joint Publication (JP) 3-09, *Joint Fire Support,* 10 April 2019, defines as "the planning and executing of fire, so targets are adequately covered by a suitable weapon or group of weapons."[4] Using the lowest echelon is not simply using the lowest level firing asset but also using the lowest echelon for the planning and execution of the fires.

THE PROBLEM OF CENTRALIZATION

The above doctrine would seemingly encourage using decentralized control as needed for rapidly massing of fires at the lowest echelon when necessary and to ensure fires are being actively and aggressively used. However, one additional FS execution principle acts as a roadblock to timely and accurate fires. That is "maximum feasible centralized control (especially in the defense)" (FM 3-09, para 1-25).[5] In practice for a BDE, this dictates mission processing and clearance at the BDE fires cell level rather than using different support relationships (direct support is the most decentralized relationship per FM 3-09, para 4-52)[6] or using quick-fire nets (a suggested method for more reactive counter-fire in FM 3-09, para 3-27[7] and Army Techniques Publication [ATP] 3-09.42, *Fire Support for the Brigade Combat Team*, 1 March 2016, par 5-151).[8] The problem with centralization is that the Army's doctrinal requirement for maximum centralized control actively impedes the other principles of FS and prevents the achievement of timely and accurate fires.

"A WAY"—RESPONSIVE FIRES

Clear solutions exist to use doctrine to achieve timely, accurate, and effective fires, but require both commanders and fire supporters to make clear and often painful choices about how to allocate fires. Good fires practices are listed below:[9]

- For BDE and below FS planning, the principle of maximum centralization when feasible should be disregarded in favor of maximum mass and timeliness.
- Use essential fire support tasks (EFSTs) to drive FS planning to achieve a focus of fires during mission execution.
- To achieve the above, units should be encouraged to establish quick-fire nets when appropriate for specific operations and enforce clear priorities of fire at every echelon.
- Conducting good and consistent digital sustainment training enables a rapid digital link both from sensor to shooter and horizontally between units.
- When at all possible, main effort targets should be executed by all available fires assets (including CAS), understanding that FS outside that DP will be entirely on lower echelon organic support.
- Fires execution should be aggressive—using raids, intelligence, surveillance, reconnaissance (ISR) targeting, and unobserved fires.

- Fires planning should include a basic schedule of fires incorporated as part of the targeting process, ensuring that there is an understanding of FS limitations in time and space.
- All fires planning must be conducted with consideration for the survivability of the fires assets (e.g., avoid 60-minute suppression missions near opposing force [OPFOR] counter-fire radar).
- Pre-battle conditions check for BNs and BDEs should include distribution of final common version of fires products and the successful execution of an FA technical rehearsal.

The fires community expects to be routinely outranged and outgunned by peer opponents in large-scale combat operations (LSCO). If the maneuver is to be successful in the face of fires inferiority and the missions achieved, fires planning must be realistic, flexible, and decisive.

Tactical Decision Making Exercise: The BDE has been given the missions of breaching an enemy defensive belt in front of their primary logistical node and engage a potential enemy counterattack force north of the selected breach site. The BDE has 18 howitzers for FS, 1 sortie of CAS, and no attack aviation. The BDE has identified that the main effort must be the breach, with an exploitation of the breach as supporting effort one and the northern movement to contact as supporting effort two. The BDE S-6 has placed retransmission assets to enable good frequency modulated (FM) communication across the area of operations (AO).

Using the initial vignette and the principles above, determine the following:

1. What is an essential FS task for the BDE?

2. What is the general scheme of fires? (Counterfire, destruction targets, suppression targets, etc.)

3. What is the communication or task organizational guidance for FS to enable more effective FS?

4. What is the priority for CAS?

Endnotes

1. ADP 3-19, *Fires*, 31 July 2019, par 2-6.

2. FM 3-09, *Fire Support and Field Artillery Operations*, 30 April 2020.

3. Ibid.

4. JP 3-09, *Joint Fire Support*, 10 April 2019.

5. FM 3-09, para 1-25.

6. FM 3-09, para 4-52.

7. FM 3-09, para 3-27.

8. ATP 3-09.42, *Fire Support for the Brigade Combat Team*, 1 March 2016, para 5-151.

9. Operations Group, National Training Center.

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CHAPTER 18

Managing and Defending the Rear Area

CPT JONATHAN R. KASPRISIN

Vignette: The brigade (BDE) has committed its assault force through the breach to seize objective (OBJ) DODGERS when the tactical command post (TAC) battle captain's radio sounds. A complex attack of irregular forces and indirect fire has destroyed the logistics package (LOGPAC) with munition resupply for the field artillery (FA) and fuel resupply for the combined arms battalion (CAB) breach force. Without that resupply, the FA does not have the resources to attrite the enemy's counterattack force staging in the deep area and the BDE will not be able to employ the refueled CAB to exploit their successful attack. The BDE commander enacts the branch plan, limiting the BDE's operations and demands to know how these critical assets were destroyed. Six hours later, the BDE operations officer reported that the LOGPAC had to move an additional 15 kilometers (km) forward because the BDE could not transition the rear area. The quick reaction force (QRF) was not prepared to respond because of a gap in reporting, and there was an increased irregular force presence because the BDE ignored two critical population centers.

FRAMING THE PROBLEM

Army brigade combat teams (BCTs) have honed their lethality in the deep and close area component of large-scale combat operations (LSCO); however, they have neglected the rear area. The rear area is the "area within a unit's area of operations extending forward from its rear boundary to the rear boundary of the area assigned to the next lower level of command."[1] A BDE's rear area is a complex environment with numerous activities from friendly forces across component commands including civil affairs (CA), special forces (SF), the brigade support area (BSA), engineers, fires, military police (MP), medical units, and multiple indigenous populations and institutions (IPI). To achieve the complex objectives in the rear area while enabling the primary mission with overwhelming combat power in the close fight, a BDE must decide where to assume risk to each mission, the force, and to inaction.

DOCTRINE

While doctrine assigns responsibilities and key tasks for the division and corps consolidation and support areas, this framework is not clearly defined for the BDE's rear area. Extrapolating from the consolidation and support area in Field Manual (FM) 3-96, *Brigade Combat Team*, 19 January 2021, the purpose of the BDE's rear area is to support, enable, and control operations while setting conditions to transition the rear area to follow-on forces. The rear area achieves this through area security, terrain management, movement control, mobility support, clearance of fires, and tactical combat forces.[2]

"A WAY"—MANAGING AND DEFENDING THE REAR AREA

To achieve the complex objectives in the rear area while enabling the primary mission with overwhelming combat power in the close fight, a BDE must decide where to assume risk to each mission, the force, and to inaction. When managing risk to each mission, the BDE must identify which assets are critical to mission success by phase with a prioritized protection list (PPL). The BDE should employ the protection cell or a working group to assess assets based on criticality and vulnerability, then develop the PPL based on the commander's guidance, intelligence preparation of the battlefield (IPB), and targeting.[3] The protection cell should develop the PPL during mission analysis and recommend changes throughout the operation. For example, a BDE might designate the following PPL during the offense: Q50 Radar, multiple launch rocket system (MLRS) unit, the BSA, a specified line of communication (LOC), Class (CL) III (petroleum, oil, lubricants) and CL V (ammunition) resupply missions, and signal nodes. An additional risk to the mission is extended LOCs as the BDE advances in the fight. To mitigate this risk, the BDE needs to develop clear requirements for the rear area battle-space owner to transfer the rear boundary to follow on forces. An example criterion is all armored threats neutralized, civil security established in critical population centers, and all BDE equipment forward of a given phase line (PL). These well-defined PPL and transition requirements provide a clear scope, task, and purpose the BDE can assign to a task-organized unit in charge of the rear area where most of these assets reside.

The command must be able to apply maximum combat power to accomplish the mission, which means that not every item on the PPL can receive continuous protection. The BDE must identify where to assume risk to force with force allocation. The force allocation must come with clear command and support relationships, which can creatively mitigate risk through reinforcing and complementary protection. For example, task organizing a mortar section to the rear area can mitigate risk to force by providing responsive fires instead of putting platoons of combat power in static defensive positions. Additionally, the BDE can leverage IPIs with well-defined commander's critical information requirements (CCIRs) and named areas of interest (NAIs) to focus civil affairs (CA) operations within the rear area. For example, this specifically allows a CA company to identify, assess, develop, and mobilize indigenous capabilities to enable civil security, thereby preserving the combat power of the BDE. Without deliberately creating a PPL, allocating forces, and assigning a unit headquarters; the BDE assumes the risk of inaction that leaves critical assets exposed and gaps in support. It hinders the BDE's ability to execute operations.

To achieve the defined scope, task, and purpose, the BDE must ensure unity of command within the rear area. During multiple rotations at the National Training Center (NTC), the lack of synchronized command and control (C2) in the rear area resulted in freedom of movement for enemy forces, compromised sustainment operations, and led to gaps in intelligence collection. All of these issues impeded the purpose of the rear area and disrupted close area combat operations. Because of available assets, it is not feasible for a BDE to establish a BDE-level support area command post like higher echelons. Rather, the BDE must designate responsibilities for the BDE and BN command posts in the rear area and then provide appropriate venues to synchronize across lines of effort. While there are numerous potential headquarters, such as the FA BN or brigade support battalion (BSB), these units have primary missions focused beyond the rear area and do not have the combat power to dedicate toward securing the rear area. The brigade engineer battalion (BEB) on the other hand is intimately tied to protection and has the assets to provide initial security, therefore should be the rear area security command post.

To maintain the unity of command in this instance, the BEB must be the rear area battle-space owner with other units in the rear area responsible for their local security. The BEB can provide complementary protection by positioning a response force and developing reinforcing protection through terrain management by refining unit locations. A method the BEB can use to reinforce protection is a rear area working group. The BEB should lead this working group with participation from key personnel from the BDE staff and units within the BDE's rear area. This working group can drive unit placement, terrain management for protection, and facilitate the transition of the rear boundary to follow forces. The working group can submit outputs to the BDE staff that publishes coordinating instructions in a BDE fragmentary order (FRAGORD). This allows the BEB to exercise C2 in the rear area while the FRAGORDs processing through the BDE facilitates synchronization between the BEB, other BNs in the rear area, and special operations forces (SOF) elements. An example output from a rear area working group would be unit tactical assembly area (TAA) locations, an updated priority list, refined CCIRs, and NAIs for a CA company to focus civil knowledge integration (CKI) efforts to identify asymmetric threats.

To provide complementary protection, units within the rear area must respond with local security and report enemy activity to the BEB, who can coordinate a wider security response. Based on the incident, security response can range from employing a QRF to conducting a key leader engagement in the nearby population center to prevent actions in the rear area from influencing the BDE's ability to support, enable, and control operations. Civil engagement and civil reconnaissance can generate intelligence to support BDE operations, defeat asymmetric threats in the area, and provide knowledge to follow on forces. Events such as a protest, criminal activity that targets the BDE, indirect fire, or an improvised explosive device (IED) will require a local unit response with follow on actions by the BEB. The presence of an element that local security cannot defeat necessitates the BEB to conduct a combined arms maneuver. An appropriate-sized response force with supporting assets, such as integrated fires, can neutralize platoon-sized threats in the rear area (For example: enemy SOF, reconnaissance elements, or bypassed combat units).[4] Unfortunately, BDEs often only have internal squad-sized response forces with no system to employ in support of adjacent units or employ fires.

To conduct a successful combined arms maneuver in the rear area, the rear area command post must task-organize an appropriate response force, rehearse employment across the rear area, and be able to employ fires. The response force should be a dedicated force with the mobility to provide the rear area security commander depth for security and protection in the rear area.[5] The BEB is often task-organized with an MP platoon that can serve as the response force, but if there are conflicting requirements, the BEB's route clearance platoon can also fill this role. Based on the threat, the response force needs to be able to employ supporting fires that necessitate additional planning and coordination by the rear area command post.

Currently, the rear area is rarely allocated indirect capability and often does not have a system in place to employ indirect if it is available. The rear area security command post needs to be able to clear fires before it makes sense to allocate resources. The long-term issue is a lack of advanced field artillery tactical data system (AFATDS) in the BEB equipment. The BEB can overcome this by establishing strict terrain management and movement control so the BEB can clear fires on a common operating picture (COP) and then route the request to the BDE command post to be verified in AFATDS before the fire mission. To be effective, the BEB must force fidelity of their COP and must rehearse the battle drill through the BDE. With a system to clear fires in place, the BDE could allocate an indirect element, such as a mortar section, which would mitigate the risk of having a smaller response force or fewer assets on the PPL with dedicated combat power for security. The early scenario could look different by integrating risk management, enforcing unity of command, and refining a BDE's ability to conduct combined arms maneuvers in the rear area.

Tactical Decision Making Exercise: You are the rear area (protection) working group for the BDE (led by the BEB with representatives from the BDE staff, BSB, FA BN, explosive ordnance demolition [EOD] company, and CA). It is the 24-hour period before the BDE initiates movement to seize OBJ DODGERS, a city with 50 structures and a complex obstacle belt as a perimeter. Your unit's rear boundary is 25km from the forward line of troops (FLOT), there are 3 supply routes through your AO, and there is 1 critical population center in your AO. Develop an updated recommendation for a PPL, FRAGORD, and CCIR that will prevent the initial vignette from occurring. Discuss how this working group can be run in a tactical environment. The outputs will be processed for your unit.

Endnotes

1. FM 3-96, *Brigade Combat Team*, 19 January 2021, pages 2-26.
2. Ibid, pages 2-27.
3. ADP 3-37, *Protection*, 31 July 2019, pages 3-6.
4. ATP 3-39.30, *Security and Mobility Support,* 21 May 2020, pages 4-19.
5. Ibid, pages 4-20.

CHAPTER 19

Engagement Area Development

CPT JORDAN BAXTER AND CPT LUCIEN MYERS

Vignette: Your brigade combat team (BCT) is in the offense, tasked with the seizure of Razish and will transition into a deliberate defense following the seizure. The brigade (BDE) staff are starting to think about the deliberate defense with receiving the division operation order (OPORD) and looking at the military decision-making process (MDMP) timeline leading up to the defensive plan 48 hours out. The BDE is traveling west and is arrayed, from north to south: 1st Squadron defending in Drinkwater with an overall belt intent of a turn south, 2nd Squadron is in Echo Valley with an overall belt intent of a fix, and 3rd Squadron is in central corridor with an overall belt intent of a turn to the north.

FRAMING THE PROBLEM

Based on recent observations at the National Training Center (NTC), BCTs fail to properly integrate task force (TF) engineers during MDMP at the BDE and battalion (BN) levels, and properly place and employ tactical obstacles at the platoon levels in engagement areas (EA).

Engagement area development (EA DEV) is a process units must understand when tasked to defend. The BDE is typically challenged in conducting the process, because of ineffective integration of engineers during the military decision-making process (MDMP) at echelon. Successful organizations conduct effective staff integration at the BDE and TF BN engineer level, and engineer platoons understand how to correctly emplace tactical obstacles.

EA DEV is outlined in Army Doctrine Publication (ADP) 3-90, *Offense and Defense,* 31 July 2019, as a basic tactical concept, defined as "an area where the commander intends to contain and destroy an enemy force with a massed effects of all available weapons and supporting systems."[1] The seven steps to this are:[2]

1. Identify all likely enemy avenues of approach.

2. Determine likely enemy schemes of maneuver.

3. Determine where to kill the enemy.

4. Plan and integrate obstacles.

5. Emplace weapons systems.

6. Plan and integrate indirect fires.

7. Rehearse operations in the EA.

Available doctrine about this subject include:

- ADP 3-90, *Offense and Defense,* 31 July 2019.
- Field Manual (FM) 3-90-1, *Offense and Defense*, 22 March 2013.
- ATP 3-21.8, *Infantry Platoon and Squad*, 12 April 2016.
- Graphic Training Guide (GTA) 07-04-006, *Infantry Leader's Reference Card for Building the Company/Team Defense,* 2 May 1994.

"A WAY"—ENGAGEMENT AREA DEVELOPMENT

Staff integration into the BDE plan during MDMP is the job of the TF engineer, who is the brigade engineer battalion (BEB) commander or designated representative (suggest being a field grade officer). Division gives a BDE a zone intent; BDEs give belt intents (different locations, one per each maneuver BN); and companies and platoons work group obstacles to accomplish the BDE commander's overall intent. During the course of action (COA) development process, heavy involvement and understanding of where the BDE commander wants to kill the enemy must be understood. When building belts for the maneuver BNs, the BDE TF engineer must first look at the resource factors when assessing the BDE commander's intent, specifically when it comes to step four, "plan and integrate obstacles." This allows the BEB commander to allocate assets and ensure the unit is able to meet the intent with the time given across the BDE. As the resource factors are engineer assets, Class (CL) IV (construction materials) and engineer platoons are task organized under each maneuver BN, with an engineer company commander acting as the BN TF engineer.

When recommending task organization to higher headquarters, habitually aligning engineer company headquarters to their respective maneuver BNs allows for a clear understanding of the commander's intent and working relationships. A clear and concise task organization, built on the commander's intent, using the resource factors to meet the BDE commander's intent, and given to the engineer company commanders, allows for a timely transition to MDMP with their maneuver organization. Tracking is a critical step at all levels. When tracking at the BDE level, this allows the BEB commander to see where there are shortfalls and where there are gains while building the defense. With receiving timely and accurate reports at the BDE TF, engineers can make recommendations to the BDE commander to move assets across the battlefield to fill any necessary gaps in obstacle construction. Without timely and accurate reports, the BDE will not be able to reallocate assets, and the defense will not be effective.

Maneuver TF engineer responsibility lies not just on the BEB engineer company commander (task organized) but also on a staff leader inside the maneuver unit (not always a 12-series military occupational specialty [MOS]). Before the engineer company commander conducts an initial linkup with the maneuver TF, they must understand the BDE commander's intent designated for their maneuver belt (recommend guidance from the BEB commander), assets available to them, and time given to complete the defense preparation. In addition, the engineer company commander needs to control all engineering assets assigned to the maneuver force at the maneuver TF.

When conducting MDMP as the engineer staff officer defined in FM 3-34, *Engineer Operations,* 18 December 2020, the following needs to be done:[3]

- Determine engineer intelligence requirements for an area of operation (AO).
- Write the engineer annex and associated appendixes to the operation plan (OPLAN) or operation order (OPORD) to support the commander's intent, including a recommended distribution for engineer-related, command-regulated classes of supply and special equipment.
- Assist in planning the location of forward supply points for the delivery of engineer-configured loads of CL IV and CL V (ammunition) supplies. This site is coordinated with the unit responsible for the terrain and the appropriate logistics staff officer (S-4) or assistant chief of staff, logistics (G-4).
- Assist in planning the location of the engineer equipment parks for the pre-positioning of critical equipment sets (tactical bridging). Work closely with the sustainment staff to identify available haul assets (including host nation [HN]) and recommend priorities to the sustainment planners.
- Identify extraordinary medical evacuation (MEDEVAC) requirements or coverage issues for engineer units and coordinate with sustainment planners to ensure that the supporting unit can accomplish these special workloads.
- Identify critical engineer equipment and engineer mission logistics shortages.
- Provide the appropriate S-4 or G-4 an initial estimate of required CL IV and CL V supplies for the counter-mobility and survivability efforts.
- Coordinate for explosive ordnance demolition (EOD) support and integration, as necessary.

An engineer company commander or platoon leader getting task-organized under a TF must:[4]

- Understand the commander's intent and planning guidance of the parent (engineer) unit and the supported unit.
- Analyze the terrain, obstacle information, and threat capabilities.
- Know the engineer systems and capabilities to accomplish the identified tasks within the time allotted.
- Identify risks where engineering capabilities are limited or time is short, and identify methods to mitigate the risks, ensuring that potential reach back capabilities have been leveraged.
- Consider the depth of the AO and the transitions that will occur among operational elements.
- Plan for the sustainment of engineer activities. Engineers ensure that the logistical requirements are analyzed and accounted for through the end state and are given resources to accomplish the mission and facilitate future operations (FUOPs).

If there is not a designated staff leader who is conducting the engineer planning for the maneuver TF, the engineer company commander task organized to the maneuver BN has to coordinate both. While conducting MDMP with the maneuver TF, the TF engineer (engineer company commander) needs to understand the development of the TF's desired EA as it ties into the BDE commander's intent. The engineer commander must walk through and discuss the EA with the maneuver TF commander. By doing this, the engineer commander can ensure they have a clear idea of what they are able to provide in a timely manner.

During COA development at the BN level, the engineer company commander will provide recommendations on group obstacles meeting the intent of the maneuver commander in line with the BDE commander's obstacle plan. As the engineer commander receives reports from the various platoons, they can create the initial shared understanding for the TF on the development of the EA. They must take the reports and ensure the TF and BEB are receiving regular updates on the progress or friction points within the planning and integrating obstacles of the EA. This reporting will allow the maneuver TF commander or BDE commander to use the engineer estimates and desired obstacle effects to better meet the higher headquarters intent.

Platoon-level integration is understanding the overall intent of the maneuver commander's plan that matched the intent of the BDE, while creating the obstacles on ground to match correctly in a timely manner. After receiving the various obstacle groups, a platoon must assess if they have the necessary time and resources to create the desired effects. To create this shared understanding, a platoon leader must regularly report to their higher headquarters. Obstacle location by type, raw data completion status, classes of supplies consumed, and fully mission capable (FMC) status of all counter-mobility/survivability platforms is imperative. As the platoon reports on these items, they will create a common operating picture (COP) across the TF and BDE if obstacles will be completed on time or if resources and time are limiting factors. Additionally, at the platoon level, doctrinal standards must be enforced for anti-vehicular ditches, triple-standard concertina, and hull defilade vehicle fighting positions to ensure desired counter-mobility and survivability effects are achieved.

APPLICATION

BDEs are in the offense, tasked with the seizure of Razish (urban terrain) and will transition into a deliberate defense following the seizure. The BDE staff are starting to think about the deliberate defense with receiving the division OPORD and looking at the MDMP timeline leading up to the defensive plan 48 hours out. The BDE is traveling west and is arrayed, from north to south: 1st Squadron defending in Drinkwater with an overall belt intent of a turn south, 2nd Squadron is in Echo Valley with an overall belt intent of a fix, and 3rd Squadron is in Central Corridor with an overall belt intent of a turn to the north. As the TF engineer, how does one integrate with the maneuver planners at echelon to assist in EA development?

The regimental engineer squadron commander or engineer S-3 attends the initial mission analysis (MA) planning and brief with the regimental headquarters staff and can provide the draft engineer task organization to be published in warning order (WARNORD) 1 from the regiment to the squadrons. The engineer S-3 plans and attends the COA development for the regiment to help shape the defensive effort before the transition. The output of COA development is a solidified task organization (including all available assets), overall belt intents for the regiment, tracking methods for regiment, transition timelines, and reporting procedures from the engineer squadron.

At the publication of WARNORD 1, engineer troops conduct linkup with their respective squadrons to start MDMP for the upcoming defense. Bravo troop (engineer) commander links in with the 3rd Squadron staff to start EA DEV planning and coordination with all engineer elements. The engineer commander first understands where the squadron commander wants to kill the enemy and how their EA fits into the overall regiment's plan. Second, they coordinate for CL IV and CL V as they build out the overall turn intent in the central corridor, ensuring resources match the time they have available to them.

During COA development, engineer supply points are established and timelines on when CL IV and CL V will arrive are established. At the conclusion of the MDMP, the OPORD is published for the squadron to prep and prepare for the defense. The output products through MDMP at the squadron-level include, CL IV and CL V drop-off locations, transition timelines, planning timelines, reporting procedures, and tracking products. Following the commander's OPORD, the platoons start to plan and rehearse for their involvement in integration of counter-mobility and survivability obstacles. The platoon leader walks the ground with the maneuver troop commander and helps tie in the correct obstacle effort to meet the overall intent. This not only looks correct on the map, but the platoon leaders also ensure it looks correct on the ground as they build out the EA.

Engineer integration into the defensive plan is only successful when organizations conduct effective staff integration at the BDE and TF BN engineer level, and engineer platoons understand how to correctly emplace tactical obstacles. Without effective integration, the BDE will not be able to successfully accomplish their overall intent in a timely manner and will not contain or destroy the enemy.

Endnotes

1. ADP 3-90, *Offense and Defense*, 31 July 2019.
2. Ibid.
3. FM 3-34, *Engineer Operations*, 18 December 2020.
4. Ibid.

GLOSSARY

ACRONYMS AND ABBREVIATIONS

1SG	first sergeant
A&L	administration and logistics
AAA	anti-aircraft artillery
AAL	additional authorized list
AAPP	air assault planning process
AATF	air assault task force
AATFC	air assault task force commander
ABCT	armored brigade combat team
ACA	airspace coordination areas
ACO	Airspace Coordination Order
ADC	alpha distribution company
ADP	Army doctrine publication
ADRP	Army doctrine reference publication
AFATDS	advanced field artillery tactical data system
AGM	attack guidance matrix
AHB	assault helicopter battalion
AMB	air mission brief
AMC	air mission commander
AMCM	air mission coordination meeting
AMSAA	Army Materiel Systems Analysis Activity
AO	area of operations
AOA	avenue of approach
APC	armored personnel carrier
ASL	authorized stockage list
ATGM	anti-tank guided missile
ATO	air tasking order
ATP	Army techniques publication
AVD	anti-vehicle ditch
AVTF	aviation task force
AXP	ambulance exchange point

BAE	brigade aviation element
BAS	battalion aid station
BCT	brigade combat team
BDA	battle damage assessment
BDAR	battle damage assessment and repair
BDE	brigade
BEB	brigade engineer battalion
BFT	blue force tracker
BHL	battle handover line
BII	basic issue items
BISE	brigade intelligence support element
BMP	Boyevaya Mashina Pjehotys
BMT	battalion maintenance technician
BN	battalion
BRDM	Boyevaya Razvedyvatelnaya Dozornaya Mashina
BSA	brigade support area
BSB	brigade support battalion
BSMC	brigade support medical company
BTG	battalion tactical group
C2	command and control
C4I	command, control, communications, computers, and intelligence
CAB	combined arms battalion
CAISI	combat service support automated information system interface
CALL	Center for Army Lessons Learned
CAR	combined arms rehearsal
CAS	close air support
CASEVAC	casualty evacuation
CASL	common authorized stockage list
CBRN	chemical, biological, radiological, nuclear
CCIR	commander's critical information requirements
CCL	combat configured load

CCP	casualty collection point
CEMA	cyber electromagnetic activities
CFL	coordinating fire line
CJTF	combined joint task force
CK	containerized kitchen
CKI	civil knowledge integration
CLS	combat lifesaver
COA	course of action
COEI	components of the end item
COP	common operating picture
COTS	commercial off the shelf
CPT	captain
CPX	command post exercise
CROP	container roll in/out platforms
CSM	command sergeant major
CSSB	combat sustainment support battalion
CTCP	combat trains command post
CTM	continue the mission
CUOPs	current operations
DA	Department of the Army
DCGS-A	Distributed Common Ground System-Army
DCS	defense conference services
DNL	do not load
DOD	Department of Defense
DODIC	Department of Defense identification code
DOS	day of supply
DP	decision point
DSA	division support area
DSM	decision support matrix
DSSB	division sustainment support battalion
DST	decision support template
DTG	division tactical group
EA	engagement area

EAB	echelon above brigade
EA DEV	engagement area development
ECD	estimated completion date
EEoB	electronic order of battle
EFST	essential fire support task
EM	electromagnetic
EMCON	emissions control
EMS	electromagnetic spectrum
EN	engineer
EOD	explosive ordnance demolition
ERPS	emergency resupply planning sequence
ESR	equipment status report
ETIOV	earliest time information is of value
EW	electronic warfare
EXCHECK	execution checklist
FA	field artillery
FAC	forward air controller
FASCAM	family of scatterable mines
FFIR	friendly forces information requirement
FFT	field feeding team
FIST	fire support teams
FLE	forward logistical element
FLOT	forward line of troops
FM	field manual
FM	frequency modulation
FMC	fully mission capable
FMT	field maintenance team
FPOL	forward passage of lines
FPU	field pack-up units
FRS	forward repair system
FS	fire support
FSCM	fire support coordination measure
FSCOORD	fire support coordination

FSE	fire support element
FSEM	fire support execution matrix
FSO	fire support officer
FTCP	field trains command post
FUOP	future operation
GCM	graphic control measures
GCSS-A	Global Combat Support System-Army
GSAB	general support aviation battalion
GT	ground tactical
GTC	ground tactical commander
H&S	heat and serve
HAF	helicopter assault force
HE	high explosive
HHC	headquarters and headquarters company
HMMWV	high mobility multipurpose wheeled vehicle
HOPE	higher, operational, planning, and enemy
HPTL	high payoff target list
HVT	high-value target
IC	information collection
ICSM	information collection synchronization matrix
IED	improvised explosive device
INFOCON	information control
IPB	intelligence preparation of the battlefield
IPC	initial planning conference
IPRTF	in position, ready to fire
ISO	in support of
ISR	intelligence, surveillance, reconnaissance
IVO	in vicinity of
JBCP	joint battle command platform
JCR	joint capabilities release system
JF	joint force
JP	joint publication
JSA	joint security area

JTAC	joint terminal attack controller
LCRTF	light capability rough terrain forklifts
LHS	load handling system
LLDR	lightweight laser designator rangefinder
LMTV	light medium tactical vehicle
LNO	liaison officer
LOA	limit of advance
LOC	line of communication
LOGCOP	logistics common operating picture
LOGPAC	logistics package
LOGSTAT	logistics status
LOGSYNC	logistics synchronization
LRP	logistics release point
LSCO	large-scale combat operations
LTC	lieutenant colonel
LTIOV	latest time information is of value
LZ	landing zone
MA	mission analysis
MANPAD	man-portable air defense
MATP	modular ammunition transfer point
MCL	mission-configured loads
MCO	maintenance control officer
MCP	main command post
MCS	maintenance control sergeant
MEDEVAC	medical evacuation
MET	meteorological data
METT-TC	mission, enemy, terrain, troops, time available, and civilian
MFP	mortar firing point
MFS TRM	modular fuel system tank rack modules
MIBN	mechanized infantry battalion
MIC	mechanized infantry company
MLRS	multiple launch rocket system

MOPP	mission oriented protective posture
MP	military police
MRE	meal, ready to eat
MTC	movement to contact
MTOE	modified table of organization and equipment
MTRCS	multi-temperature refrigerated container system
MTV	medium tactical vehicle
NCO	noncommissioned officer
NLT	no later than
NMC	non-mission capable
NTC	National Training Center
O&I	operations and intelligence
OPFOR	operational force
OPTEMPO	operation tempo
ORR	operational readiness rate
PAA	positioning areas for artillery
PACE	primary, alternate, contingency, emergency
PFED	pocked-sized forward entry device
PHIIA/PHIIB	phase 2 Alpha/phase 2 Bravo
PIR	priority intelligence report
PLS	palletized load system
PLST	palletized load system trailer
PMCS	preventive maintenance checks and services
PMESII-PT	political, military, economic, social, infrastructure, information, physical environment, and time
POI	point of injury
PPL	prioritized protection list
PZ	pickup zone
QLET	quick logistics estimation tool
RDSP	rapid decision making and synchronization process
ROE	rules of engagement
ROM	receipt of mission

ROZ	restricted operating zone
RPOL	rearward passage of lines
RTO	radio telephone operator
RW	rotary wing
SAAFR	Army aircraft flight routes
SATS	standard automotive tool set
SAVO	Spider Activated Volcano Obstacle
SBCT	Stryker brigade combat team
SBF	support by fire
SEAD	suppression of enemy air defense
SIGINT	signal intelligence
SITEMP	situational template
SOF	special operations forces
SOM	scheme of maneuver
SOP	standard operating procedure
SOSRA	suppress, obscure, secure, reduce, assault
SPO	support operations officer
SSA	supply support activity
SSL	supply stock listing
SYNCHMAT	synchronization matrix
TAC	tactical command post
TACON	tactical control
TACSAT	tactical satellite communications
TACSOP	tactical standard operating procedures
TAIS	tactical airspace integration aircraft system
TC	training circular
TF	task force
TLE	target location error
TLP	troop leading procedure
TLWS	target list worksheet
TOC	tactical operations center
TRP	target reference point
TSM	target synchronization matrix

TSS	target selection standards
TTLODAC	target, trigger, location, observer, delivery platform, attack guidance, and communications
TTP	tactics, techniques, and procedures
TWG	target working group
UAP	unit airspace plan
UBL	unit basic load
UGR	unitized group rations
UMCP	unit maintenance collection point
UMT	unit ministry team
UTI	upper tactical internet
VSAT	very small aperture terminal
WfF	warfighting function
WIN-T	Warfighting Information Network-Tactical
XO	executive officer

TERMS

Camel II	unit water pod system
CHERRY/ICE	hot or cold landing zone
Class I	rations
Class II	clothing and equipment
Class III	petroleum, oil, lubricants
Class IV	construction materials
Class V	ammunition
Class VII	major end items
Class VIII	medical material
Class IX	repair parts
D+#	day plus number of days
H+#	hour plus number of hours
HIPPO	load handling system compatible water tank rack
km	kilometer
m	meter

MECH	mechanized
mm	millimeter
S-1	personnel
S-3	training and operations
S-4	supply

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