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Task Analysis of a Mobility and Survivability Critical Combat Function as Accomplished by a Brigade

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Human Resources Research Organization

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Armored Forces Research Unit

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FOREWORD

One of the goals for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to facilitate the development of training strategies that will serve the needs of the combined arms team today and into the 21st century. The indispensable foundations, the cornerstones, for meeting this goal are solid information and databases. One such base is a set of comprehensive descriptions of how soldiers accomplish their missions. Many task descriptions have been developed where the focus is on activities within a particular Battlefield Operating System (BOS); these are often further narrowed to one BOS element within one echelon. What has been lacking are task descriptions and analyses with a broader BOS perspective that focus not only on intra-BOS relationships, but also the relationships of that BOS with other BOSs in accomplishing the overall mission. It is this latter perspective that is needed, for example, to define training requirements and strategies for combined arms operations.

This work is one of a series of efforts to develop necessary combined arms task information databases. It has been conducted under the Force XXI Training Program. It provides a detailed description and task analysis of one of the seven Critical Combat Functions (CCFs) that comprise the mobility and survivability (M&S) BOS. This M&S function is CCF 21, Overcome Obstacles. The task descriptions and analyses pertain to brigade combat teams and their interdependent relationships, both internal to the M&S BOS and externally with other BOSs (e.g., brigade staff, engineer battalion, military intelligence, and fire support). The depiction of this combat force multiplier can be used by civilian and military trainers and training developers when assessing performance or developing enhanced training programs. ARI is also using this work in its research on structured training for the force of the future.

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While there have been many advocates of the Critical Combat Functions (CCFs) methodology, MG Lon Maggart stands out for his vision and insight to capture the concept and expand it well beyond the original intent. He provided solid direction to LTC William Martin, then head of the Force XXI Training Program (FXXITP) at Fort Knox, to embrace the CCF concept and include it as a foundation in the ongoing development of the FXXITP. Without their continual support of the CCF concept the completion of the effort would have been much more difficult.

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Finally, a large debt of gratitude is owed to BG (Ret.) Bill Mullen for guidance and support on the product. He provided the program management that ensured this product is well "synched" with past products as well as those of the future. His and his staff's continual attention to details will provide the Army with a truly unique document.

TASK ANALYSIS OF A MOBILITY AND SURVIVABILITY CRITICAL COMBAT FUNCTION AS ACCOMPLISHED BY A BRIGADE

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TASK ANALYSIS OF A MOBILITY AND SURVIVABILITY CRITICAL COMBAT FUNCTION AS ACCOMPLISHED BY A BRIGADE

Overview for Brigade CCF 21

OVERVIEW

This overview provides the user with necessary and relevant information concerning the development of critical combat function (CCF) 21, Overcome Obstacles, as performed by a brigade. A CCF is defined as: "an integration (i.e., interrelationship) among participants and tasks that represents a force multiplier with a definable outcome." Participants and the organizational structure identified in this analysis are based on the table of organization and equipment (TOE) 87042L100 dated 10/05/95. Field Manual (FM) 71-3, Final Draft, August 1995, was used to identify special staff positions.

This analysis of a brigade's performance of CCF 21, Overcome Obstacles, which is part of the Mobility and Survivability Battlefield Operating System (BOS), is a product of the process of developing a training strategy for the brigade. This analysis is one of seven CCFs which comprise the Mobility and Survivability BOS. The analysis describes tasks, participants, products, and processes required by the brigade to achieve outcomes necessary for the commander and staff to plan for combat operations in compliance with the commander's concept and intent. The outcomes addressed in this analysis are those specific to CCF 21 (see page 4a-1).

Synchronization of CCFs provides commanders at tactical echelons with a definable outcome that materially affects the battle. Without this synchronization it is doubtful that a commander's concept and intent will be achieved.

The analysis identifies the critical tasks and subtasks undertaken by the brigade commander, his staff, and the brigade subordinate/supporting commanders. This task analysis (TA) addresses the functions of the planning, preparation, and execution phases of the battle at the brigade level. For the purposes of this analysis, the function is depicted as beginning at a point when the brigade has completed a mission and is in position about to receive its next mission. It ends after the battle as the brigade consolidates, reorganizes, and begins to transition into the next mission. The level of detail and the tasks selected by the analyst were those determined to be appropriate in meeting the training development objective. Compliance with branch training strategies and proficiency at Army Training and Evaluation Program - Mission Training Plan (ARTEP-MTP) tasks and subtasks are recognized to be the responsibility of subordinate commanders. However, some subordinate unit tasks and subtasks are critical to brigade success; these, then, are included in this analysis because the brigade commander may wish to emphasize them in his training guidance.

Some tasks from CCF 18, Plan for Combat Operations; CCF 19, Direct and Lead Unit during Preparation for the Battle; and CCF 20, Direct and Lead Units in Execution of Battle, are integrated into this analysis because they reflect the command and control (C2) aspects of the plan, prepare, and execute process. Subtasks reflected under the tasks are those actions or events which are critical to the coordination, synchronization, and integration of brigade activities for planning the overcoming of obstacles. The analysis assumes that the brigade has an engineer battalion attached or placed under its operational control (OPCON) from the division engineer brigade.

The brigade overcomes obstacles using both in-stride and deliberate methods. The brigade conducts in-stride breaches and river crossings through the task organization (TO) of its battalion task forces (TF). Brigade deliberate breaches are conducted against complex obstacle systems defended by a battalion-sized element. Brigade deliberate river crossings are conducted as a part of a divisional river crossing. A change in the mission that would require the brigade to conduct a deliberate breach, or conduct a river crossing as part of a division, would normally require the brigade planning sequence to return to the planning portion of the TA.

The brigade engineer (the engineer battalion commander) and his staff play an important role in the brigade planning process. When they are available, the engineer battalion commander and the engineer battalion Operations and Training Officer (S3) play a direct role in brigade planning, acting as part of the brigade staff. When the engineer battalion commander and staff are not available, the responsibility to plan and prepare engineer estimates and input for brigade orders within the brigade headquarters rests with the assistant brigade engineer (ABE). The ABE is the brigade commander's staff engineering officer, and as such, he is the primary focus for training tasks found in this CCF.

The ABE section consists of the engineer battalion S3 (the officer-in-charge), the ABE, and an operations sergeant. The ABE section must have substantial assistance from the engineer battalion staff to conduct an engineer battlefield assessment (EBA); an EBA is essentially an engineer battalion staff process. The results are disseminated to the brigade by the ABE in his engineer estimate. In training, where an engineer battalion staff is not available, sufficient engineer technical and tactical information must be available to the ABE to allow him to successfully complete the EBA process and produce a useful engineer estimate. The documents necessary for the ABE and the brigade staff to plan, prepare, and execute mobility missions are found in the Key Inputs and Outputs subcomponent of this analysis.

The brigade staff members that do not figure prominently in this TA include the Adjutant/Personnel Officer (S1), air defense liaison officer (ADLO), signal officer, and Army aviation liaison officer. These staff officers have responsibilities critical to brigade mission accomplishment. However, the nature of their responsibilities is not unique to the brigade performing actions to overcome obstacles. The analyst determined that the tasks these staff officers accomplish in overcoming obstacles are not significantly different from their tasks for any other function that the brigade performs. The CCFs 18 through 20 contain staff tasks for the entire staff and may be consulted to identify tasks for brigade staff members not included in this TA.

An effort was made to identify specific task titles taken directly from the appropriate ARTEP-MTP. The wording of each task in this analysis is sometimes a direct quote from MTP. Generally, the wording of the tasks is an integration of tasks and requirements derived from ARTEP-MTPs, applicable FMs, and other related documents. Those tasks not taken from the ARTEP-MTPs are: a) derived titles that may apply only to a part of an ARTEP-MTP subtask or some other element of the ARTEP-MTP; b) multiple subtasks from several different, but related ARTEP-MTP tasks; and c) tasks that are not directly stated in the ARTEP-MTP, but are implied by other tasks or requirements in an applicable FM or other related document.

USER'S GUIDE

Section 1 - Background on Functional Approach to Training and Critical Combat Functions

Given the task-based nature of Army training, the tools for identifying, structuring, and organizing tasks critical for combat effectiveness are essential to realizing goals of Army training for the 21st century. Providing such tools has been a persistent effort in structuring assessment and planning of collective training. Army Training and Evaluation Program Mission Training Plans (ARTEP-MTPs), which list tasks by mission, represent one approach to provide that structure. A complementary approach has emerged in the use of functional areas.

Several initiatives have considered tasks in relation to functional areas rather than missions. One such approach was adopted at the Combat Training Centers (CTCs). This approach, developed in the mid-1970s, used Battlefield Operating Systems (BOSs) as the framework for after action reviews (AARs) and take home packages. The BOSs are seven functional areas which encompass tactical operations (see Component 6).

In addition, to enhance the utility of the BOS structure, the United States (U.S.) Army Training and Doctrine Command (TRADOC) developed the Blueprint of the Battlefield (U.S. Army TRADOC, 1993). That work used the BOS structure as a framework to describe the tactical level of war in terms of operating systems, functions, and generic tasks. While the functional hierarchy in the Blueprint of the Battlefield provided finer granularity than the BOS, the Blueprint of the Battlefield did not describe battlefield processes, critical sequences of events, procedural steps, and many of the tasks that must be accomplished.

This research product (RP) is part of an effort to improve further the functional structure for planning and assessing collective training through the identification and analysis of Critical Combat Functions (CCFs). Like the Blueprint of the Battlefield, the CCFs orient on functions (activities and processes that occur over time) while retaining granularity that supports task-based training. The CCF analyses extend the Blueprint of the Battlefield in two ways. They:

- Identify relationships among BOSs, echelons, tasks, and people required to achieve identified outcomes, thus improving representation of battlefield processes and sequences of events.
- Provide explicit ties from BOSs to tasks derived from ARTEP-MTPs and doctrine, tactics, techniques, and procedures (TTPs) described in doctrinal manuals, applied at CTCs, or identified by experienced field commanders (Cdr), thus improving representation of procedural steps and tasks that must be accomplished.

Task analyses (TAs) of CCFs have been conducted at a level of detail that supports a functional approach to training. The functional approach uses battlefield functions performed by units as the basis for assessing proficiency and planning training. The CCF TAs provide content and a framework to apply the functional approach to training. Thirty-nine (39) CCFs¹ are relevant to tactical operations at echelons from battalion (Bn) through corps. Association of specific CCFs to particular type units indicates those CCFs germane to the unit's training program (see Section 9).

¹ See Component 6, Index of Critical Combat Functions, for a listing of the relevant CCFs.

Section 2 - Overview of Components to the Research Product

This RP was completed as part of the overall project, CCFs for the Force XXI Training Program. The RP contains eight (8) components, including this User's Guide. The components facilitate the use of the RP for a variety of purposes, some of which are described in Sections 3 and 4 of this User's Guide component. The title and a brief description of each of the 8 components follow.

User's Guide: Descriptions are provided of the background of CCFs and the Functional Approach to training, the components of an RP, and approaches to exploit the flexibility of the TA to support multiple Army uses and users.

Task List Summary: The tasks which are described in detail in the Task List are summarized and numbered. The numbers allow cross referencing among RP components.

Task Analysis: The TA consists of nine (9) subcomponents:

Purpose and Outcomes: The overall end result which the CCF is supposed to accomplish, termed the purpose, is identified. This subcomponent also identifies the end states or bottom line results necessary to achieve the purpose, termed outcomes. As a consequence, this subcomponent of the analysis defines the end states that performance of the tasks must accomplish.

Flow Chart: This graphical description portrays the sequence of CCF tasks within the framework of tactical battle phases (i.e., planning, preparation, execution). This subcomponent describes the flow of tasks during each battle phase, the vertical task linkages (to higher and lower echelon units), and horizontal linkages to other CCFs for the echelon being analyzed. It also depicts the information flow which affects the tasks.

Task Linkages to Other CCFs/Units: Tasks performed in other CCFs or by other units are described as they relate (i.e., are linked) to the tasks of the CCF being analyzed. These descriptions provide verbal details of the relationships portrayed graphically by the Flow Chart. The purpose of this subcomponent is to allow the user to incorporate related tasks and participants into a training exercise for this CCF. Tasks which link to this analysis have been extracted for CCFs or units for which TAs have been accomplished and extrapolated for TAs which have not yet been developed.

Key Participants by Task: The participants required to perform the tasks are identified. Identification is based on the appropriate echelon/type unit TOE. It includes special staff members who are critical for task accomplishment.

Key Inputs and Outputs: The critical information required and generated by participants to successfully accomplish the CCF is identified. Where information results from the performance of the CCF tasks, CCF information output is identified. One CCF's information output normally is provided as another CCF's input. Critical input and output are organized by the specific part of the doctrinal product or means used to communicate it. The source of critical information is specific only to the CCF echelon and function being analyzed, and is not intended to reflect all the information the product may contain. The linkages of inputs and outputs to specific tasks are depicted in the Flow Charts subcomponent.

Task List: Tasks and supporting tasks necessary to perform the function are listed by battle phase. Normally, the task identifies the primary participants responsible for performing the tasks. The tasks have been extracted from the appropriate ARTEP-MTPs,

echelon and functional area field manuals (FMs), and proponent school special texts. The specific reference sources for each task and sub-task are shown in brackets [] following the task. Tasks derived from ARTEP-MTPs are referenced with the ARTEP-MTP number and task/subtask number, such as [ARTEP 5-145-MTP, Task 05-1-0002/1]. Tasks derived from FMs are referenced with the FM number and page number, such as [FM 5-71-3, p. 2-11]. Tasks identified during interviews with TRADOC school proponent subject matter experts (SMEs), CTC Operations Groups, and Army Forces Command (FORSCOM) units are referenced as field notes (FN) and the source is reflected, such as [FN- National Training Center (NTC) combat service support (CSS) observer-controllers (OCs)]. Tasks derived from the Center for Army Lessons Learned (CALL) are referenced with the notation LL for lessons learned; the CALL publication number and page number are included, such as [LL-CALL Newsletter 95-6, p. 16]. In some cases, the analysis of the CCF resulted in identification of tasks for which no doctrinal references could be identified. Such tasks were selected based on author experience and relevant doctrine. These tasks are referenced as author notes [AN]. The references facilitate review of original source material for further detail and context.

Lessons Learned Integrated into the Task List: The lessons learned extracted from the CALL publications relevant to performing this CCF are identified. They are organized and listed by the appropriate task from the Task List subcomponent. The purpose of this subcomponent is to provide the user with recent TTPs associated with the performance of the tasks in this CCF.

Gate Tasks: Critical individual or collective tasks which CCF participants must be able to perform prior to engaging in the identified CCF tasks are listed so that the training can be conducted efficiently and safely.

Tasks Organized by Outcomes: Tasks and supporting tasks necessary to perform the function are listed by outcome. The outcomes are those listed in the first subcomponent on page 4a-1. This subcomponent supports analysis of performance related to outcomes to identify tasks for sustainment or remediation training.

References: The references and sources used by the analyst are identified.

Acronyms and Abbreviations: The acronyms and abbreviations used in the analysis are listed. The acronyms and abbreviations were taken from relevant doctrinal references.

Index of Critical Combat Functions: The thirty-nine (39) CCF relevant to Army tactical echelon units, organized by the BOS they compose, as derived from TRADOC Pamphlet 11-9, Blueprint of the Battlefield, are identified.

Structure of Critical Combat Functions: Definitions for the 39 CCFs and BOSs they compose are provided.

CCFs Listed by Echelon: The occurrence of CCFs relevant to training according to echelon/type units is listed. This list is subject to change as CCF research continues.

Section 3 - Use of the Task Analysis

The analysis of a function contained in the TA can support a variety of purposes. General purposes and information needs will be suggested for force developers, materiel developers, doctrine developers, training developers, and unit commanders.

- **Force Developers:** Develop personnel systems and organizational structures to support the force. The Purpose and Outcomes, and Task List subcomponents, for example, could support identification of required capabilities and tasks that a particular unit or organization must be able to perform. The Flow Chart subcomponent could support delineation of a new organizational design.
- **Materiel Developers:** Develop requirements for new systems to support performance activities of soldiers and to accomplish new battlefield requirements. Through the identification of requirements, new technologies and processes can be applied to support force needs. The Flow Chart subcomponent, for example, could be used to illustrate opportunities to revise procedures to take advantage of enhancements in areas such as information dissemination.
- **Doctrine Developers:** Develop new and modify existing doctrine to integrate emerging technologies and to implement changing Army missions and priorities. The TTPs will evolve to meet new battlefield conditions and requirements as well as to guide combined arms, joint service, and multinational operations. The emphasis in the TA on interrelationships can identify gaps in task coverage which should be addressed through revisions to publications such as FMs and ARTEP-MTPs.
- **Training Developers:** Develop new and modify existing training programs to support new doctrine, emerging technologies, changes in organization, and reduced resources and training environments. Potential uses of the TA to support areas such as development of training support packages (TSP) and development of training aids, devices, simulators, and simulations (TADSS) are discussed in Section 4.
- **Unit Commanders:** Assess training effectiveness, develop training plans, and execute training. The TA support for training assessment and planning training events is discussed in Section 4.

Developers and commanders often begin by performing or examining one or more front end analyses (FEAs) to gain an understanding of a relevant issue. Whether they perform FEAs themselves or draw from available analyses (like the CCF TAs), information is sought on many topics. Likely topics include the following (with relevant CCF TA subcomponents):

- What are the objectives/missions of the system? (Purpose and Outcomes)
- What are the vertical and horizontal linkages between elements, and what are the information inputs and outputs associated with these? (Flow Chart, Task Linkages to Other CCFs/Units, and Key Inputs and Outputs)
- What are the processes and tasks being performed within each element? (Task Lists, Tasks Organized by Outcomes, and Flow Chart)
- Who are the players and/or target audience? (Key Participants by Task)
- What enabling and objective knowledge and skills are required? (Gate Tasks)
- Are there any experiences and lessons learned that would be helpful? (Task Lists and Lessons Learned Integrated into the Task List)

Two detailed examples of TA usage are presented in Section 4 below. These examples demonstrate, first, how unit commanders and, second, how training developers can use the TA.

The examples should serve as a guide for potential users in that generic information within the TA is transferable to other applications.

Section 4 - Unit Commander and Training Developer Use of a Task Analysis

Unit Commanders

Unit commanders use published Army doctrine as contained in FM 25-100, Training the Force, and FM 25-101, Battle Focused Training to assess training effectiveness and to plan training events. The TA provides relevant information for assessment and planning within the intent of those documents. The added information supports functional training which uses proficiency related to functions as the basis for identifying tasks to be trained and structuring training on those tasks. The TA supplements the training and assessment systems and processes already in use by commanders.

1. Conduct Training Assessment

The commander assesses the performance of the tasks in the mission essential task list (METL) to identify functions that require attention, to select outcomes for training focus, and to provide specific guidance for training. This functional training assessment allows the commander to perform an analysis across several layers with a successively narrow focus:

- a. METL tasks.
- b. Each BOS for each METL task that requires remediation or sustainment.
- c. Relevant CCFs for each BOS that requires remediation or sustainment.
- d. Relevant outcomes for each CCF that requires remediation or sustainment.

The commander assesses CCF performance in the context of the unit METL and the BOS by using the Purpose and Outcomes subcomponent. To support the assessment, commanders could develop and complete a worksheet which relates CCFs and the outcomes to the METL and BOS, as depicted in Figure 1, which presents a completed assessment worksheet for CCF 21, the CCF addressed in this RP.

Outcomes:

1. Brigade's (Bde) mobility plan supports the brigade's scheme of maneuver and the brigade commander's intent.
2. Brigade elements are able to pass by, over, or through any obstacle to movement.

Mission Essential Task	CURRENT TRAINING STATUS			Overall METL Status
	BOS: Mobility and Survivability			
	CCF: 21 - Overcome Obstacles			
	Outcomes	1	2	
P		P	P	
Defend	<u>Outcome 1:</u> Engineers did not support preparation of the task force (TF) Alpha counter attack route.			
	<u>Outcome 2:</u> Engineer elements were not positioned to overcome scatterable mines (SCATMINES) in rear area.			
Attack; Movement to Contact		P	U	P
	<u>Outcome 1:</u> Priority of engineer support was not given to main effort.			
			<u>Outcome 2:</u> Smoke and artillery fires were not well coordinated with breaching elements.	
Overall CCF Status: CCF 21 = P			BOS Status = P	

Note: Italics indicate entries made by hypothetical commander.

Figure 1. Example of worksheet relating CCFs and the outcomes to the METL and BOS.

2. Plan Training Events

The TA supports four tasks related to planning a training event. The use of the TA to perform each of these tasks is described below.

a. Selecting Tasks and Supporting Tasks To Be Trained

1) Selection of tasks by outcome or battle phase. When the training assessment identifies outcomes to be achieved, trainers can focus their attention on particular tasks that support the outcome. This process can be streamlined by referring to the Tasks Organized by Outcomes subcomponent of the CCF 21 TA. The summary tasks (tasks at the first, or top, level of definition) relevant to one of the outcomes for the CCF 21 TA contained in this RP are listed in Figure 2.

Outcome 2

Brigade elements are able to pass by, over, or through any obstacle to movement.

Tasks

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.
13. The brigade conducts reconnaissance.
14. The brigade staff collects information for overcoming obstacles.
17. The brigade conducts rehearsals to overcome obstacles.
19. The brigade staff collects information for overcoming obstacles.
22. The brigade conducts mobility operations.
24. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

Figure 2. Example of tasks relevant to one of the outcomes for the CCF 21 TA.

If trainers have no basis for identifying an outcome within the CCF or if the training is to focus on a single battle phase, they can select tasks from the Task List Summary component. Since this component is organized by the battle phases of plan, prepare, and execute, it is supported by the Flow Chart. Figure 3 shows the execution tasks from the Task List Summary component from the CCF 21 TA contained in this RP.

EXECUTION TASKS

19. The brigade staff collects information for overcoming obstacles.
20. The brigade staff evaluates and updates staff products.
21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.
22. The brigade conducts mobility operations.
23. The brigade staff evaluates and updates staff products.
24. The brigade staff disseminates information and coordinates actions for overcoming obstacles.
25. The brigade conducts mobility operations.
26. The brigade commander and brigade staff change the operation or plan.
27. The brigade reorganizes on the objective.

Figure 3. Example of execution tasks.

2) Selection of supporting tasks. Trainers must also select supporting tasks. Supporting tasks are blocks of performance required by the task. Each task and supporting task is structured to describe actions to be performed (e.g., steps) or the end states of the task (i.e., aspects of the standard). The detailed description for each task and supporting task is contained in the Task List subcomponent of the TA for CCF 21 component. An excerpt from that subcomponent contained in this RP is shown in Figure 4.

22. The brigade conducts mobility operations.

- c. The brigade commander directs and leads the brigade in the execution of a brigade deliberate breach of an obstacle system. [AN]
 - 3. The brigade commander and brigade S3 synchronize the brigade breaching operations. [AN]
 - 4. The brigade fire support officer (FSO) directs and coordinates fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37]
 - 5. The support force commander maneuvers the support force into its overwatch positions. [FM 71-3, p. 4-41]

Figure 4. Example of the Task List subcomponent.

3) Identification of references. As Figure 4 also illustrates, the doctrinal source (publication number and task number or page number), in brackets, is included with the listing of each task and supporting task. Trainers can refer to the References component to: (a) determine the doctrinal publication title and publication date; and (b) refer to doctrinal source material for further detail and context, if desired. Figure 5 provides examples of the reference component contained in this RP which support Figure 4.

Field Manuals

3-50	Smoke Operations, 4 December 1990
5-71-3	Brigade Engineer Combat Operations (Armored), 3 October 1995
71-3	Armored and Mechanized Infantry Brigade, 8 January 1996
71-123	Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force (Bn TF), and Company/Team; 30 September 1992

Figure 5. Examples of the Reference component.

4) Identification of techniques and useful training information. As part of the task selection process and the planning of the training event, trainers can refer to the Lessons Learned Integrated into the Task List subcomponent of the TA for CCF 21 component. This subcomponent identifies lessons learned extracted from the CALL publications. This subcomponent also provides information not necessarily contained in the applicable doctrinal references but determined to be relevant to training of the function based on performance history of brigades at the CTCs. In other cases, lessons learned at CTCs may provide a clearer definition of how tasks should be performed and the conditions under which they must be performed. An excerpt from that subcomponent for the CCF 21 TA component is shown in Figure 6.

22. The brigade conducts mobility operations.

LL- Clever use of weather and terrain is the best obscuration method. Alternatively, employ screening smoke between enemy and friendly forces. Don't employ smoke on or near breach site because it creates command and control (C2) problems, silhouettes the assault forces, and identifies the breach site.

- Initiate smoke on enemy with mortars, they are under TF control and use WP which builds up smoke rapidly.
- Plan to sustain smoke with other assets such as chemical smoke platoon, field artillery (FA), smoke pots, on board vehicle smoke, or engine exhaust smoke.
- Smoke platoon effective if wind/weather correct and sufficient time available to build up smoke screen. [CALL Newsletter 88-2: Minefield Breaching--May 1988]

Figure 6. Examples of Lessons Learned subcomponent.

b. Selecting the Training Audience. After determining which tasks must be trained, trainers should next identify the training audience. The Key Participants by Task subcomponent of the TA component supports that analysis. This subcomponent, based on the unit's TOE, specifies the participants required to perform the tasks selected for training. One potential result of this review is that trainers may have to coordinate (through the appropriate commanders) with external units to have a specific special staff member participate in the training event. Figure 7 depicts an example of that subcomponent for the CCF 21 TA.

22. The brigade conducts mobility operations.

Bde Cdr, Bde Executive Officer (XO), Bde Intelligence Officer (S2) and Bde S2 Section, Bde Operations and Training Officer (S3) and Bde S3 Section, Bde Supply/Logistics Officer (S4) and Bde S4 Section, Bde FSO, Bde fire support element (FSE), Assistant Brigade Engineer (ABE), Engineer Bn S3, Engineer Bn Cdr, Bde chemical officer (CHEMO), smoke unit leader, Bn TF Cdrs, Bn TF S3s

Figure 7. Example of Key Participants by Task subcomponent.

c. Identifying Task Training Sequences and Products To Support Training. Unit trainers must also decide which products and information sources must be replicated to introduce external stimuli to the training events. The Flow Chart and Key Inputs and Outputs subcomponents help determine that information.

The flow chart is used to determine: (a) the flow of tasks during each battle phase; (b) vertical task linkages (to higher and lower echelon units); (c) horizontal task linkages (to tasks in other CCFs for the echelon being analyzed); and (d) information input and output which affect relevant tasks. The flow chart provides a graphical description of tasks as they are sequenced within the framework of the battle phases. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may interact with preceding or subsequent tasks.

The Input section of the Key Inputs and Outputs subcomponent contains critical information, organized by the doctrinal product or means used to communicate it, required by participants to achieve the purpose of the CCF. The information and products described must be

replicated to drive training events. The Lessons Learned Integrated into the Task List subcomponent can also support identification of conditions to be replicated.

The Outputs section of the Key Inputs and Outputs subcomponent describes information which results from the performance of the CCF tasks. The Outputs should be covered by performance standards and should usually be covered during the AAR. An excerpt from the Key Inputs and Outputs subcomponent for the CCF 21 TA is shown in Figure 8.

KEY INPUTS

D-4 Division river crossing site overlay and matrix

- a. Crossing sites.
- b. River width at crossing sites.
- c. Estimated raft-round trips per hour for each crossing site.
- d. Number of routes per site.
- e. River frontage at each site.
- f. Number of centerlines per site.
- g. Total number of raft loads crossed per hour.
- h. Graphic representation of the division crossing area.

KEY OUTPUTS

B-2 Brigade Warning Order (WARNO)

- a. The brigade mission statement.
- b. The brigade commander's intent.
- c. The brigade commander's critical information requirements.
- d. Graphics (e.g., fire support (FS), maneuver, obstacle).
- e. Projected task organization (TO) of the brigade.
- f. Enemy situation.
- g. Assets available for collection of information and intelligence.

Figure 8. Example of Key Inputs and Outputs subcomponent.

d. Determining Prerequisite Training Tasks. If units are to obtain full benefit from training, participants must have previously achieved a level of proficiency in the individual and collective tasks required to enable safe and effective training of the selected tasks. Identification of such prerequisite tasks is accomplished by analyzing the Gate Tasks subcomponent. Trainers use this information to provide focus for individual training, subordinate echelon collective training, and staff training. An excerpt from the Gate Tasks subcomponent for the CCF 21 TA is shown in Figure 9.

22. The brigade conducts mobility operations.**Bn/TFs**

[Soldier Training Publication (STP) 7-11II-military qualification standards (MQS), Infantry]

- Conduct Obstacle Breaching [O4-3315.02-0001]

Breach force engineer and breaching element

[STP 5-21II-MQS, Engineer]

- Supervise the Clearance of Complex Obstacles [O1-1940.10-1003]

[ARTEP 5-145-31-MTP, Engineer Platoon]

- Conduct Breaching Operations [5-2-0114]

Figure 9. Example of Gate Tasks subcomponent.

Training Developers

The TRADOC service schools (proponents) develop training materials to guide individual and collective training. Training development is conducted within the framework of the systems approach to training. The TA in this RP supports the systems approach for collective training by identifying not only the tasks for each type of unit, but also horizontal and vertical relationships within the BOS, relationships with other BOSs, and relevant details about the relationships. The descriptions of interrelationships, which describe the scope of required synchronization plus details about tasks and supporting tasks, provide training developers with information about the content of training which they are supporting.

Within TRADOC, current training development supports Force XXI. The TA is especially germane to the WARFIGHTER XXI (collective) emphasis. The information can be applied within each of the five WARFIGHTER XXI components:

- Standard Army Training System (SATS)
- TSPs
- TADSS
- Standard After Action Review System (STAARS)
- Army Training Digital Library (ATDL)

1. Standard Army Training System

The SATS is a computer-based software system that automates training management doctrine. The most direct connection of CCF TAs to SATS is through the Combined Arms Training Strategy (CATS). This is the mechanism for establishing long-range and short-range unit training strategies. Each CATS identifies tasks, drills and exercises, TADSS, and resources to support training for each unit type. The TA components help developers identify tasks to be addressed by the strategy; the TA is especially useful for identifying staff tasks that are not currently included in ARTEP-MTPs. In addition, the TA directly supports two elements of the CATS--Training Unit Audience and Prerequisite Training Gates. Training developers can extract information about the audience for training from the Key Participants by Task subcomponent. They can find prerequisites for the tasks in the Gate Tasks subcomponent.

Figure 10 shows extracts from the CATS for the Armor Battalion TF that were based on CCF TAs for the battalion TF.

Training Unit Audience	Prerequisite Training Gates
MOVEMENT TO CONTACT	
Full TF, including Slice (includes FSO/FSE, combat electronic warfare intelligence (CEWI) Assets, Engineer, air defense artillery (ADA), tactical air control party (TACP), TF Combat/Field Trains brigade support area (BSA))	TF Command Posts, Staff and Slice (Attached units, staff elements, and Liaison Officers (LNOs)) - Assessed at "T" level task proficiency in the performance of BOS functions and supporting tasks: 7-1-3003, 4, 5, 6, 7, 8, 9, 14, 15, 18, 19, 21, 22, 23 24, 27. . .

Figure 10. Extracts from the CATS for the Armor Battalion TF.

2. Training Support Packages

A TSP for collective training integrates training products, materials, and information necessary to train one or more tasks. The TA in this RP supports development of unit preparation materials, tactical materials, and trainer materials. Examples of how its subcomponents can contribute to development of TSPs include:

- The Task Lists subcomponent or Tasks Organized by Outcomes subcomponent can be a useful first draft for a training and evaluation outline. Since both lists may include tasks that are not explicitly described in ARTEP-MTPs, they are especially valuable in designing staff training.
- Training developers can augment the training and evaluation outline by providing TTPs drawn from Lessons Learned Integrated into the Task List subcomponent.
- Several subcomponents work together to specify conditions that must be replicated for realistic training. The Flow Chart and Key Participants by Task subcomponents show the type of horizontal and vertical interactions that should be built into the scenario. The Task List and Key Inputs and Outputs subcomponents describe the scope of those interactions. The inputs and outputs can be especially useful in packaging required information to train particular tasks.
- In addition to setting out the conditions, the Purpose and Outcomes and Key Inputs and Outputs subcomponents can be the basis for building "A Way" demonstrations of how the various units, sections, and individuals are synchronized during the operation and what results the event/exercise should produce.
- The Purpose and Outcomes subcomponent can be a guide for organizing an AAR. Once an O/C identifies an outcome to be sustained or improved, the Tasks Organized by Outcomes subcomponent can be used to identify particular tasks and supporting tasks to address in the AAR.

3. Training Aids, Devices, Simulators, and Simulations

The TA supports TADSS development by defining requirements in terms of tasks which should be performed. In other words, the TA describes the "what" of training so that TADSS developers can develop the "how." The TA is especially valuable for specifying interactions between echelons and among units. Three subcomponents give such information: Flow Chart, Task Linkages to Other CCFs/Units, and Key Participants by Task.

4. Standard After Action Review System

The STAARS will be linked to live, virtual, and constructive exercises and operations with the intent of translating lessons learned into leader development and collective training concepts, methods, and strategies. Since the TA structures assessments at successively detailed levels (mission, BOS, CCF, outcome, and task), it would be well suited to an automated feedback system. The TA can also provide a useful level for aggregating CTC-based lessons learned between the task and BOS levels. In the same way that the Purpose and Outcomes subcomponent can facilitate AARs by CTC OCs, the information in that subcomponent can structure lessons learned.

5. Army Training Digital Library (ATDL)

The ATDL is a repository of digital information related to training. The TA is somewhat compatible with ATDL formats and some CCF TAs have been formatted into the Automated Systems Approach to Training (ASAT) (McIlroy, 1996). The ATDL makes it possible to share the information from TA components with commanders in the field through the interactive electronic "library without walls" that provides digitized access to training information. In addition, the CCF and outcome structure could be useful in organizing task-related information within ATDL.

TASK LIST SUMMARY

This component provides a summary of the first level of tasks on the task list.

PLANNING TASKS

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.
2. The brigade receives an order initiating a mission from its higher headquarters.
3. The brigade commander and brigade staff conduct mission analysis.
4. The brigade issues a warning order.
5. The brigade commander issues his planning guidance to the brigade staff.
6. The brigade staff prepares staff estimates.
7. The brigade staff develops courses of action.
8. The brigade staff and brigade commander analyze courses of action (war game).
9. The brigade staff compares courses of action.
10. The brigade commander announces his decision.
11. The brigade staff prepares the operations order or fragmentary order.
12. The brigade commander and brigade staff issue the operations/fragmentary order to subordinate elements.

PREPARATION TASKS

13. The brigade conducts reconnaissance.
14. The brigade staff collects information for overcoming obstacles.
15. The brigade staff evaluates and updates staff products.
16. The brigade staff disseminates information and coordinates actions for overcoming obstacles.
17. The brigade conducts rehearsals to overcome obstacles.
18. The brigade commander and brigade staff change the operation or plan.

EXECUTION TASKS

19. The brigade staff collects information for overcoming obstacles.
20. The brigade staff evaluates and updates staff products.
21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

- 22. The brigade conducts mobility operations.
- 23. The brigade commander and brigade staff change the operation or plan.
- 24. The brigade reorganizes on the objective.

**TASK ANALYSIS
OF A
Mobility and Survivability
Critical Combat Function
AS ACCOMPLISHED BY A BRIGADE**

PURPOSE AND OUTCOMES

This subcomponent identifies what the CCF is supposed to accomplish overall, which we term as the purpose. This subcomponent also identifies the end states or bottom-line results necessary to achieve the purpose, which we term outcomes. As a consequence, this subcomponent of the analysis defines the end states that performance of the tasks will accomplish.

PURPOSE

Brigade forces maintain freedom of movement by removing, clearing, reducing, or otherwise overcoming natural and man-made obstacles.

OUTCOMES

1. The brigade's mobility plan supports the brigade's scheme of maneuver and the brigade commander's intent.
2. The brigade elements are able to pass by, over, or through any obstacles to movement.

FLOW CHART (PLAN, PREPARE, EXECUTE)

This subcomponent provides a graphical/pictorial description of CCF tasks as they are sequenced within the framework of tactical battle phases (e.g., planning, preparation, execution). The purpose of this subcomponent is to describe: the flow of tasks during each battle phase; vertical task linkages (to higher and lower echelon units) and horizontal task linkages (to other CCF tasks for the echelon being analyzed); and to depict information input and output which affect each task. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may overlap with preceding or subsequent tasks.

Each echelon is described by the echelon on the left of the flow chart; a horizontal line depicts the flow of tasks by sequence, reading left to right. The horizontal line for the echelon being analyzed is thicker than all other echelon horizontal lines.

Tasks from the CCF task list are applied to the echelon line in the sequence in which they occur. The tasks are depicted in a task box. Inside and to the upper left of each task box is placed the task number of the appropriate task as listed in the Task Linkages to Other CCFs/Units, Key Participants by Task, and Key Inputs and Outputs subcomponents.

The linkages of tasks, both vertically and horizontally, are depicted with lines. Arrowheads are placed on lines to depict linkages or interaction with other tasks. The linkage or interaction between these tasks is detailed in the task list.

Figure 11 illustrates the battalion or Bn TF task contributing to or otherwise supporting the brigade task.

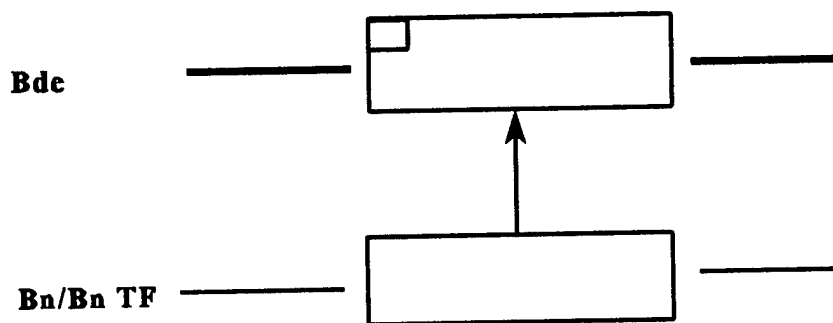


Figure 11. Battalion or battalion task force task supporting the brigade task.

Figure 12 illustrates the brigade task contributing to or otherwise supporting the battalion or Bn TF task.

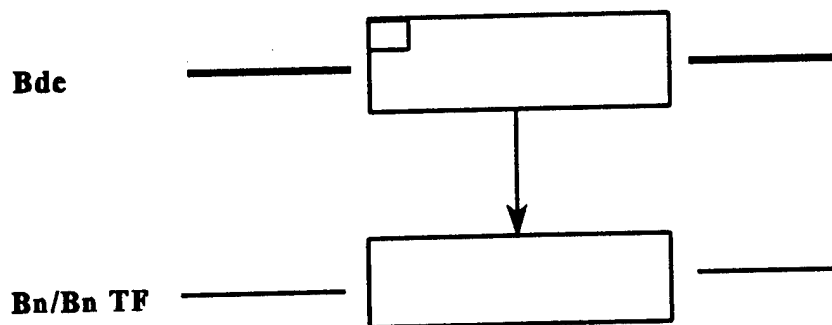


Figure 12. Brigade task supporting the battalion or battalion task force task.

Figure 13 illustrates both brigade and battalion or Bn TF tasks contributing to or otherwise interacting with each other.

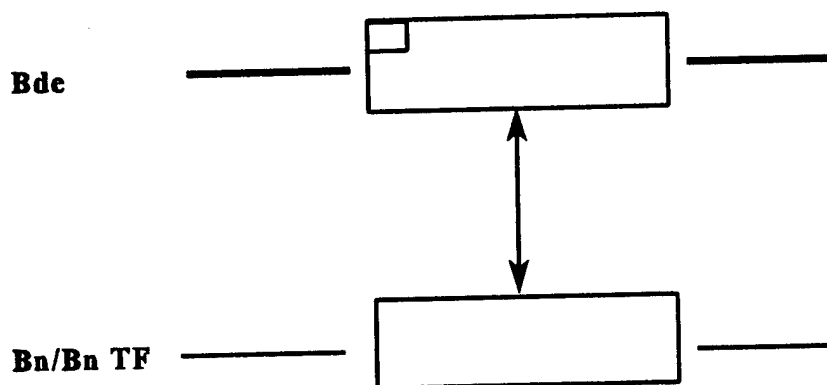


Figure 13. Brigade and battalion or battalion task force tasks interacting with each other.

Lines with no arrowheads reflect a task and its subordinate sub-tasks. Figure 14 illustrates this association.

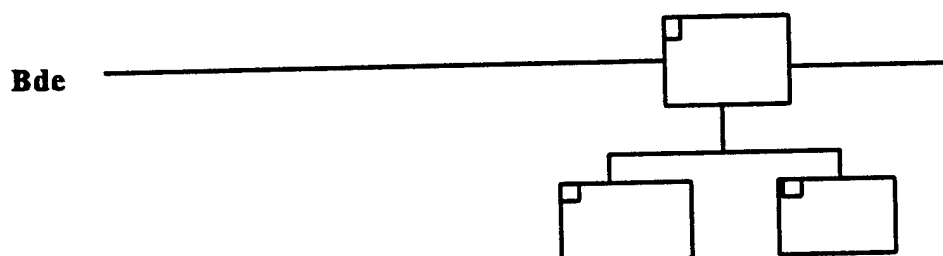


Figure 14. Example of a task and its subordinate sub-tasks.

Inputs and/or outputs, as contained in the "Key Inputs and Outputs" subcomponent (section 5) of this CCF TA are also reflected on the flow charts. The relevant input and/or output letter listed in the "Key Inputs and Outputs" subcomponent is listed on the outside upper right of the task box. Information input and output for each relevant task is depicted to demonstrate input information which is required to perform the task and output information which is produced as a result of performing the task. Figure 15 illustrates how inputs and outputs are depicted.

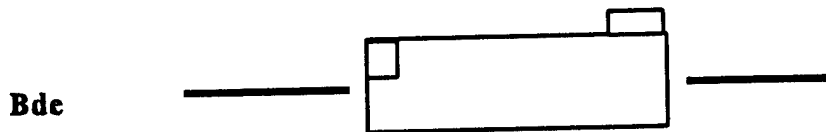


Figure 15. Example of how inputs and outputs are depicted.

Tactical standing operating procedures (TSOPs) are depicted on the flow charts. Although TSOPs are inputs, they are relevant to the performance of all tasks. Because of this relevancy, they are illustrated differently than all other inputs (as described in figure 5). The TSOPs are illustrated as separate boxes, located before the first task on the echelon line. Figure 16 illustrates the placement of TSOPs boxes.

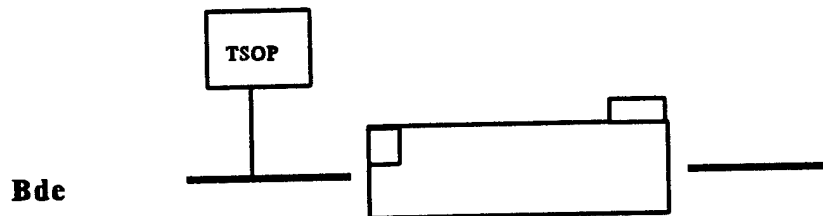


Figure 16. Placement of TSOPs boxes.

The article "the" has been deleted from the task statements in order to conserve space and simplify the task flow diagrams.

TASK LINKAGES TO OTHER CCFs/UNITS

This subcomponent links the tasks performed as a part of this function with the tasks performed in other CCFs or by other units. The purpose of this subcomponent is to allow the trainer or training developer to incorporate related tasks and participants into a training exercise for this CCF. Tasks which link to this analysis have been extrapolated for CCFs/type units for which TAs have not been accomplished. For tasks extracted from published CCF TAs, the task numbers are provided.

PLANNING TASKS

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.
2. The brigade receives an order initiating a mission from its higher headquarters.
3. The brigade commander and staff conduct mission analysis.
4. The brigade issues a warning order.
5. The brigade commander issues his planning guidance to the brigade staff.
6. The brigade staff prepares staff estimates.

LINKS TO OTHER CCFs/UNITS

Engineer Battalion CCF 18.

- Task: The engineer battalion S3 section monitors the current mobility, countermobility, and survivability operations.
- Task: The engineer battalion S2 and S3 sections monitor and direct engineer intelligence collection in accordance with the brigade reconnaissance and surveillance plan.

Brigade CCF 18.

- Task 3a: The brigade commander conducts mission analysis.
- Task 3b: The brigade staff conducts mission analysis and determines mission essential information.

Engineer Battalion CCF 18.

- Task: The engineer battalion begins troop leading procedures.
- Task: The engineer battalion executive officer monitors the maneuver brigade's planning and begins parallel planning.

Brigade CCF 18.

- Task 5c: The brigade commander issues planning guidance to the brigade staff which includes engineer priorities and guidance for overcoming obstacles.

Brigade CCF 1.

- Task 2a: The brigade S2 identifies significant characteristics of the environment and determines how they will influence mobility.
- Task 3a: The brigade S2 analyzes the battlefield environment and considers

Task Linkages for Brigade CCF 21

effects on the threat and friendly courses of action (COAs) (e.g., mobility, engineer capabilities).

- Task 3b: The brigade S2 describes the battlefield's effects on threat and friendly capabilities and broad COAs (e.g., mobility, engineer capabilities).
- Task 4a: The brigade S2 conducts a threat evaluation with the assistance of the brigade staff to determine possible enemy strengths, obstacle construction, and defense of defiles and rivers.
- Task 4c: The brigade S2 identifies threat capabilities to construct obstacles.
- Task 5e: The brigade S2 identifies initial collection requirements.

Brigade CCF 15.

- Task 6d: The brigade FSO develops the fire support estimate for supporting mobility operations.
- Task 6e: The brigade air liaison officer, with the brigade naval gunfire liaison officer, develops an estimate for employment of close air support for supporting mobility operations.
- Task 6f: The brigade naval gunfire liaison officer develops an estimate for employment of naval surface fires for supporting mobility operations.
- Task 6g: The brigade aviation liaison officer develops an Army aviation estimate for supporting mobility operations.

Brigade CCF 16.

- Task: The brigade air defense liaison officer (ADLO) develops an air defense estimate for supporting mobility operations.

Brigade CCF 29.

- Task 6f: The brigade engineer and the engineer battalion S4 determine engineer support requirements.

Engineer Battalion CCF 18.

- Task: The engineer battalion S2, brigade S2, and the ABE perform an Engineer Battlefield Analysis.
- Task: The engineer battalion S2 and the brigade S2 analyze the enemy's

Task Linkages for Brigade CCF 21

- engineer countermobility capabilities.
Task: The engineer battalion S2 and brigade S2 develop a modified combined arms obstacle overlay (MCOO) and a situational template.
- 7. The brigade staff develops courses of action.
 - Brigade CCF 15.
 - Task 7d: The brigade targeting team determines targets for each course of action.
 - Brigade CCF 16.
 - Task: The brigade ADLO prepares air defense COAs to support brigade breaching and river crossing operations.
 - Brigade CCF 18.
 - Task 7i: Each brigade staff officer integrates his battlefield operating system COA into the brigade S3's COA.
 - Brigade CCF 29.
 - Task 7d: The brigade S4 and the forward support battalion's support operations section coordinate to identify support requirements for courses of action.
 - Engineer Battalion CCF 18.
 - Task: The engineer battalion commander and engineer battalion staff develop COAs for the engineer mission based on the scheme of maneuver and specified or implied brigade engineer tasks.
- 8. The brigade staff and brigade commander analyze courses of action (war game).
 - Brigade CCF 1.
 - Task 6a: The brigade S2 participates in war gaming breaching obstacle systems or river crossings.
 - Brigade CCF 29.
 - Task 8c: The brigade S4 coordinates with the brigade S3 to select supply routes; the brigade S4 recommends support and supply priorities with controlled supply rates to support operations.
- 9. The brigade staff compares courses of action.
 - Brigade CCF 18.
 - Task 9b: Each brigade staff officer prepares a COA decision matrix for

Task Linkages for Brigade CCF 21

his own battlefield operating system or area of responsibility.

10. The brigade commander announces his decision.
11. The brigade staff prepares the operations order or fragmentary order.

12. The brigade commander and brigade staff issue the operations/fragmentary order to subordinate elements.

PREPARATION TASKS

13. The brigade conducts reconnaissance.

14. The brigade staff collects information for overcoming obstacles.

Brigade CCF 18.

- Task 11a: The brigade commander states the brigade task organization he desires to the brigade staff; the task organization supports overcoming obstacles.
- Task 11b: The brigade commander specifies command and support relationships between engineer units and the brigade.
- Task 11e: The brigade executive officer supervises the brigade staff in converting the war gaming notes and the brigade commander's guidance into a written order operations or fragmentary order.

Brigade CCF 29.

- Task 12c: The brigade engineer or ABE coordinates with the brigade S4 and the forward support battalion's support operations to ensure that Classes IV and V obstacle materials are requisitioned and transported to designated work sites.

LINKS TO OTHER CCFs/UNITS

Battalion Task Force CCF 21.

- Task 25: The battalion task force conducts an engineer reconnaissance.
- Task 26: The battalion task force conducts a river/gap crossing site reconnaissance.
- Task 27: The battalion task force conducts an enemy obstacle reconnaissance.

Brigade CCF 2.

- Task 2c: The brigade S2 coordinates collection plans and required support for collectors.
- Task 3b: The brigade S2 directs the intelligence effort.

Brigade CCF 2.

- Task 3d: The brigade S2 disseminates

Task Linkages for Brigade CCF 21

highly perishable combat information
immediately after receipt.

Brigade CCF 4.

- Task 2b: The brigade S2 section disseminates information and intelligence.

Brigade CCF 29.

- Task 14c: The brigade S4 section maintains status of supplies.
- Task 14d: The brigade S4 section maintains the current status of equipment readiness in the brigade.
- Task 14g: The brigade S4 and forward support battalion (FSB) Support Operations Section monitor Class II, IV, and VII support.

Engineer Battalion CCF 19.

- Task: The engineer battalion S2 identifies significant changes to the intelligence estimate and sends the information to the brigade S2.
- Task: The engineer battalion S2 and ABE make recommendations to the brigade S2 for changes to the brigade reconnaissance and surveillance plan.

15. The brigade staff evaluates and updates staff products.

Brigade CCF 2.

- Task 4: The brigade S2 evaluates reporting.

Brigade CCF 3.

- Task 3: The brigade S2 conducts an analysis of all the information that met the evaluation criteria.
- Task 3d: The brigade S2 section posts and updates intelligence products (e.g., MCOO, engineer estimate).

16. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

Brigade CCF 2.

- Task 3d: The brigade S2 disseminates highly perishable combat information immediately after receipt.

Brigade CCF 4.

- Task 2b: The brigade S2 section disseminates information and intelligence.

Brigade CCF 29.

- Task 15b: The brigade S4 section coordinates with the engineer

Task Linkages for Brigade CCF 21

representative for the throughput of Class IV and V material to the engineer job site.

17. The brigade conducts rehearsals to overcome obstacles.

Brigade CCF 19.

- Task 4: The brigade synchronizes tactical operations through rehearsals.

Engineer Brigade

- Task: The engineer brigade commander monitors brigade river crossing rehearsals.

Battalion Task Force CCF 21.

- Task 28: The battalion task force conducts rehearsals.

Engineer Battalion CCF 19.

- Task: The engineer battalion commander controls and participates in the engineer battalion rehearsal.
- Task: The brigade engineer assists the brigade commander as he synchronizes the plan by integrating mobility requirements.

18. The brigade commander and brigade staff change the operation or plan.

Brigade CCF 1.

- Task 7i: The S2 section produces, collects information for, processes information to update, and disseminates selected products.

Engineer Battalion CCF 19.

- Task: The brigade engineer assesses the mobility plan and recommends necessary changes.

EXECUTION TASKS

19. The brigade staff collects information for overcoming obstacles.

LINKS TO OTHER CCFs/UNITS

Brigade CCF 2.

- Task 2a: The brigade S2 coordinates collection plans and required support for collectors.
- Task 3a: The brigade S2 directs the intelligence effort.
- Task 3d: The brigade S2 disseminates highly perishable combat information immediately after receipt.

Brigade CCF 4.

- Task 2b: The brigade S2 section disseminates information and intelligence.

Task Linkages for Brigade CCF 21

Engineer Battalion CCF 20.

- Task: The engineer battalion staff sends reports and recommendations to the engineer battalion commander and the brigade headquarters.
- Task: The engineer battalion staff responds to requests for information from brigade.
- Task: The engineer battalion S3 reports the engineer battalion situation and information that fulfills the commander's critical information requirements to the brigade command posts.
- Task: The engineer battalion Adjutant/Personnel Officer (S1) and S4 transmit logistical information to the brigade command posts.
- Task: The engineer battalion S3 sends copies of fragmentary orders and new operations orders (OPORDs) to the brigade S3.

Battalion Task Force CCF 21.

- Task 58: The battalion task force reports obstacles and breaches.

20. The brigade staff evaluates and updates staff products.

Brigade CCF 2.

- Task 3c: The brigade S2 evaluates reporting.

Brigade CCF 3.

- Task 3a: The brigade S2 conducts an analysis of all the information that met the evaluation criteria.

21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

Engineer Battalion CCF 20.

- Task: The engineer battalion coordinates operations with the brigade through command and staff contact.

22. The brigade conducts mobility operations.

Engineer Brigade

- The engineer brigade commander and S3 monitor engineer operations in the division area of operations.

Engineer Battalion CCF 20.

- Task: The engineer battalion commander controls the maneuver of an engineer battalion task force (if the engineer battalion has been given a mission as a brigade breach force or assault force).

Task Linkages for Brigade CCF 21

- Task: The engineer battalion commander decides to develop and implement a new plan or modify and implement a pre-planned branch of an existing plan.
- Task: The engineer battalion commander synchronizes engineer operations.
- Task: The engineer battalion commander issues timely orders that are responsive to the developing tactical situation.

Battalion Task Force CCF 21.

- Task 47: The battalion task force integrates fire support with scheme of maneuver.
- Task 48: The battalion task force prepares expedient fords.
- Task 50: The battalion task force performs in-stride river/gap crossing operations.
- Task 51: The battalion task force supports a river crossing operation.
- Task 52: The battalion task force breaches defended obstacles.
- Task 53: The battalion task force supports by fire.
- Task 54: The battalion task force uses screening fires.
- Task 56: The battalion task force conducts minefield clearing operations.
- Task 57: The battalion task force marks a minefield.
- Task 58: The battalion task force reports obstacles and breaches.

Brigade CCF 22.

- Task: Engineer units maintain roads and combat trails.
- Task: Engineer units construct combat trails.

23. The brigade commander and brigade staff change the operation or plan.

24. The brigade reorganizes on the objective.

Engineer Battalion CCF 20.

- Task: The engineer battalion reorganizes.
- Task: The engineer battalion main command post reports the battalion's status to the brigade main command post.

Task Linkages for Brigade CCF 21

Battalion Task Force CCF 21.

- Task 55: The battalion task force consolidation and reorganization includes consideration of moving organic within the battalion task force to continue the mission.
- Task 59: The battalion task force controls and conducts evacuation (e.g., the battalion task force ensures that organic and engineer mobility equipment is recovered).

KEY PARTICIPANTS BY TASK

This subcomponent identifies the training audience for training events for the related tasks. It is based on the appropriate echelon/type unit TOE and includes special staff (as per appropriate doctrinal reference) critical for the task accomplishment. The purpose of this subcomponent is to help commanders and trainers to identify the training audience required for a training event.

PLANNING TASKS

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.
2. The brigade receives an order initiating a mission from its higher headquarters.
3. The brigade commander and brigade staff conduct mission analysis.
4. The brigade issues a warning order.
5. The brigade commander issues his planning guidance to the brigade staff.
6. The brigade staff prepares staff estimates.
7. The brigade staff develops courses of action.
8. The brigade staff and brigade commander analyze courses of action (war game).
9. The brigade staff compares courses of action.
10. The brigade commander announces his decision.
11. The brigade staff prepares the operations order or fragmentary order.
12. The brigade commander and brigade staff issue the operations/fragmentary order to subordinate elements.

KEY PARTICIPANTS

Bde Cdr, Bde XO, Bde S1, Bde S2, Bde S3, Bde S4, engineer (Engr) Bn Cdr, ABE

Bde Cdr, Bde S3, Engr Bn Cdr, ABE, Engr Bn S3

Bde S3, Engr Bn Cdr, ABE, Engr Bn S3

Bde S3, Engr Bn Cdr, ABE, Engr Bn S3, Engr Bn S2, Bn TF Cdrs, Bn TF S3s

Bde Cdr, Bde S3, Engr Bn Cdr, ABE, Engr Bn S3, Bn TF Cdrs, Bn TF S3s

Bde S2, Bde S3, Engr Bn Cdr, Engr Bn S3, Engr Bn S2, ABE, Bde FSO, Bde CHEMO

Bde S3, Bde S2, Bde S1, Bde S4, Engr Bn Cdr, ABE, Engr Bn S3, Engr Bn S2, Bde FSO

Bde S3, Bde XO, Bde S1, Bde S2, Bde S4, Engr Bn Cdr, ABE, Engr Bn S3, Bde FSO, Bde CHEMO

Bde Cdr, Bde S3, Bde XO, Bde S1, Bde S2, Bde S4, Engr Bn Cdr, ABE, Engr Bn S3, Bde FSO

Bde Cdr, Bde XO, Bde S1, Bde S2, Bde S3, Bde S4, ABE

Bde S3, Bde CHEMO, Bde FSO, Engr Bn S3, ABE

Bde Cdr, Bde XO, Bde S3, Bde S2, Engr Bn Cdr, Engr Bn S2, Engr Bn S3, ABE, Bn TF Cdrs, Bn TF S3s

PREPARATION TASKS

13. The brigade conducts reconnaissance.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Bde-tasked reconnaissance (recon) elements, division-tasked recon elements, Bde S2 Section (Sec), Bn TF S2s

14. The brigade staff collects information for overcoming obstacles.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Bde special staff Officers (Offs), Bde S2 Sec, Bde S3 Sec, Bde FSE, Bde CHEMO, Bde nuclear, biological, and chemical (NBC) Sec, ABE Sec, Engr Bn Cdr

15. The brigade staff evaluates and updates staff products.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Bde special staff Offs, Bde S2 Sec, Bde S3 Sec, Bde FSE, Bde NBC Sec, ABE Sec, Engr Bn Cdr

16. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Bde special staff Offs, Bde S2 Sec, Bde S3 Sec, Bde FSE, Bde NBC Sec, ABE Sec, Engr Bn Cdr

17. The brigade conducts rehearsals to overcome obstacles.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Engr Bn Cdr, Engr Bn S3, Engr Bn S2, Engr Bn units (elements as necessary), Bn TF Cdrs, Bn TF S3s, Bn TFs (elements as necessary), FSB Cdr, FSB S3, corps Engr elements (attached, operational control, or direct support), military police (MP) platoon leader (Plt Ldr), smoke unit

18. The brigade commander and brigade staff change the operation or plan.

Bde Cdr, Bde XO, Bde S2, Bde S3, Bde S4, Bde special staff Offs, Bde S2 Sec, Bde S3 Sec, Bde FSE, Bde CHEMO, NBC Sec, ABE Sec, Engr Bn Cdr, Engr Bn S2, Engr Bn S3, Bn TF Cdrs, Bn TF S3s

EXECUTION TASKS

19. The brigade staff collects information for overcoming obstacles.

Bde XO, Bde S2 and Bde S2 Sec, Bde S3 and Bde S3 Sec, Bde S4 and Bde S4 Sec, Bde FSO, Bde FSE, ABE, Engr Bn S3, Engr Bn Cdr, Bde CHEMO, smoke unit Ldr, Bde-tasked recon elements, Bn TF Cdrs, Bn TF S3s

20. The brigade staff evaluates and updates staff products.

Bde Cdr, Bde S2 and Bde S2 Sec, Bde S3 and Bde S3 Sec, Bde S4 and Bde S4 Sec, Bde FSO, Bde FSE, ABE, Engr Bn S3, Engr Bn Cdr, Bde CHEMO, Bn TF S3s

KEY PARTICIPANTS

KEY PARTICIPANTS

Key Participants for Brigade CCF 21

- | | |
|--|---|
| 21. The brigade staff disseminates information and coordinates actions for overcoming obstacles. | Bde Cdr, Bde XO, Bde S2 and Bde S2 Sec, Bde S3 and Bde S3 Sec, Bde S4 and Bde S4 Sec, Bde FSO, Bde FSE, ABE, Engr Bn S3, Engr Bn Cdr, Bde CHEMO, smoke unit Ldr, Bn TF Cdrs, Bn TF S3s |
| 22. The brigade conducts mobility operations. | Bde Cdr, Bde-tasked recon elements, Bde S2 and Bde S2 Sec, Bde S3 and Bde S3 Sec, Bde S4 and Bde S4 Sec, Engr Bn Cdr, Engr Bn S3, ABE, FSB Cdr, support force Cdr (Bn TF Cdr), breach force Cdr (Bn TF Cdr), breach force Engr (Engr company or Engr Bn Cdr), crossing area Cdr (Bde XO), crossing area Engr (corps Engr unit, bridging, Cdr), assault force Cdr (Bn TF Cdr), Bde FSO, Bde CHEMO, smoke unit, MP Plt Ldr, follow-and-support Cdr (Bn TF Cdr), corps bridging unit |
| 23. The brigade commander and brigade staff change the operation or plan. | Bde Cdr, Bde XO, Bde S2 and Bde S2 Sec, Bde S3 and Bde S3 Sec, Bde S4 and Bde S4 Sec, Bde FSO, Bde FSE, ABE and ABE Sec, Engr Bn Cdr, Bde CHEMO |
| 24. The brigade reorganizes on the objective. | Bde Cdr, Bde XO, Bde S4, Engr Bn Cdr, Engr Bn S3, Bn TF Cdrs, Bn TF S3s, FSB Cdr, FSB S3 |

KEY INPUTS AND OUTPUTS

This subcomponent identifies critical input information required by participants to successfully accomplish the CCF. Where information results from the performance of the CCF tasks, CCF information output will be identified. One CCF's information output normally is provided as another CCF's input. Critical input and output information is organized by the specific part of the doctrinal product or means used to communicate it. The source of critical information identified is specific only to the CCF echelon and function being analyzed; it is not intended to reflect all the information the product may contain. The purpose of this subcomponent is to identify information required to drive a training exercise for this CCF and to establish standards for measuring the performance of CCF tasks resulting in information output.

KEY INPUTS

D-1 DIVISION WARNO

- a. The division mission statement.
- b. The division commander's intent.
- c. The division commander's critical information requirements.
- d. Graphics (e.g., FS, maneuver, obstacle).
- e. Projected TO of the division's engineers and maneuver brigades.
- f. Enemy situation.
- g. Assets available for collection of information and intelligence.

D-2 DIVISION OPORD

- a. References.
 - 1) Necessary maps.
 - 2) Charts (e.g., river navigational charts, tide charts).
- b. Task organization.
 - 1) Command and support relationships for the brigade.
 - a) Maneuver.
 - b) Engineer.
 - (1) Divisional engineers.
 - (2) Corps bridging units.
 - (3) Other corps engineer units.
 - c) FA units.

- d) Air defense (AD).
 - e) Military intelligence (MI) collection assets.
 - f) Chemical.
 - g) Army aviation.
 - h) Forward support battalion.
 - i) Organization of the division for a river crossing (e.g., the establishment of a divisional crossing area headquarters (HQ)).
- 2) Effective time or times of command and support relationships.
- c. Situation paragraph.
 - 1) Weather forecasts and weather history for the area of operations (AO).
 - 2) Terrain information.
 - a) Digital terrain information for Terra Base program.
 - b) Corps' terrain analysis.
 - c) Division's terrain analysis.
 - 3) Enemy courses of action (ECOAs) and timelines.
 - 4) Enemy obstacle capabilities:
 - a) SCATMINE capabilities.
 - b) Conventional mine capabilities.
 - c) Obstacle construction capabilities.
 - 5) Corps' mission.
 - 6) Corps commander's intent.
 - d. Division mission paragraph.
 - e. Execution paragraph.
 - 1) Division commander's intent.
 - 2) Concept of the operation.
 - a) Division scheme of maneuver.
 - b) Division fires.
 - c) Engineer.

- (1) Priority of support by unit.
- (2) Priority of effort to:
 - (a) Mobility.
 - (b) Countermobility.
 - (c) Survivability.
- (3) Priority of SCATMINE support.
- (4) Authority to emplace obstacles.
- d) Deception operations.
- e) Organization of the river crossing area.
- f) Battle handover from division to brigade.
- 3) Tasks to maneuver units.
- 4) Tasks to combat support units.
 - a) Fire support.
 - (1) Air support.
 - (2) Chemical support.
 - (3) FA support.
 - (4) Naval gun fire (NGF) support.
 - b) Air defense.
 - c) Chemical.
 - d) Combat engineer and engineer support.
 - e) Intelligence.
 - f) Military police.
- 5) Coordinating instructions.
 - a) Commander's critical information requirements.
 - (1) Priority intelligence requirements (PIRs).
 - (2) Essential elements of friendly information.
 - (3) Friendly forces information requirements.

- b) Timelines.
- f. Service support paragraph.
 - 1) Controlled supply rate for all classes of supply.
 - 2) Priorities of all classes of supply.
 - 3) Distribution of Class IV and V (demolition).
 - 4) Maintenance and/or recovery and evacuation priority.
- g. Command and signal paragraph.
 - 1) Communications networks for river crossing area.
 - 2) Locations for division commander, division command group, and division command posts.
- h. Annexes.
 - 1) Intelligence annex.
 - a) Situational template (SITEMP).
 - b) Event template/matrix.
 - c) Combined obstacle overlay.
 - d) Avenue of approach overlay.
 - e) Modified combined obstacles overlay.
 - f) Information/intelligence collection plan.
 - 2) Fire support annex.
 - a) Fire support execution matrix.
 - b) Target lists.
 - c) Schedules of fire.
 - d) Target attack guidance, spreadsheets, targets sheets.
 - e) Fires in the brigade zone planned by the division.
 - f) Ammunition constraints.
 - 3) Service support annex.
 - a) Availability and allocation of Class III, IV, V, and IX supplies.

- b) Transportation.
 - (1) Transport of supply.
 - (2) Transport of equipment.
 - (3) Location of main supply route (MSR).
- c) Maintenance.
 - (1) Priority of maintenance (unit/equipment).
 - (2) Location of maintenance units.
 - (3) Collection points.
 - (4) Evacuation procedures and priorities.
- 4) Army aviation annex for aviation missions supporting mobility operations.
- 5) Engineer annex.
 - a) Division river crossing site overlay.
 - b) Division river crossing site raft centerline data.
 - c) Unit raft requirements.
 - d) Tentative division river crossing timeline.
 - e) Task organization.
 - (1) Engineer units tasked to supported units or under engineer control.
 - (2) Summary of low-density equipment.
 - (3) Availability and allocation of corps bridging assets.
 - (4) Changes to engineer TO that occur during the operation.
 - f) Situation.
 - (1) Enemy forces.
 - (a) Critical aspects of the terrain that impact on engineer operations.
 - (b) Enemy maneuver and engineer capabilities that impact on engineer operations.
 - (c) Enemy engineer capability/activity.
 - 1. Known and templated locations and activities of enemy engineer units.

2. Significant enemy maneuver and engineer capabilities that impact on engineer operations.
 3. Expected employment of engineers based on most probable enemy COA.
- (2) Friendly forces.
- (a) Designation, location, and activities of higher and adjacent engineers impacting on the supported unit or requiring coordination.
 - (b) Lists of non-engineer units capable of assisting in engineer operations.
- g) Execution.
- (1) Scheme of engineer operations.
 - (a) Concept of engineer operations to support the maneuver plan.
 - (b) Engineer tasks or main effort that support the supported unit's defeat mechanism.
 - (c) Engineer main effort by mission and unit for each phase of the operation.
 - (2) Subunit instructions.
 - (a) Engineer tasks for a specific subordinate engineer unit which are not in the basic OPORD.
 - (b) Engineer tasks which ensure unity of effort.
 - (3) Coordinating instructions.
 - (a) Critical engineer instructions.
 - (b) Mission reports that are required.
- h) Service support.
- (1) Classes of supply that impact on engineer support to mobility operations.
 - (2) Distribution plan for Class V (demolition) supplies.
 - (3) Allocation and priority of support for haul and airlift assets dedicated to engineer resupply.
 - (4) Requirements for brigades to supply transport of engineer equipment and supply.
- i) Command and signal.

- (1) Location of key engineer leaders.
 - (2) Location and planned movements of engineer command posts.
 - (3) Engineer HQ that controls the engineer effort on an area basis.
- 6) Army airspace command and control (A2C2) annex for the coordination of air movement supporting mobility operations.

D-3 DIVISION TSOPs.

- a. Habitual command and support relationships.
- b. Obstacle and SCATMINE location reporting.
- c. Request for additional assets.
- d. Transportation of supplies and equipment to forward brigades.
- e. Division river crossings.
 - 1) Division C2 during river crossings.
 - 2) Organization of the crossing area.
 - 3) Engineer support to the crossing area.
 - 4) Composition of assault and support elements.
- f. Marking of breach lanes.
- g. Handover of breached enemy obstacles.
- h. Rehearsals.
- i. Safety.

D-4 DIVISION RIVER CROSSING SITE OVERLAY AND MATRIX

- a. Crossing sites.
- b. River width at crossing sites.
- c. Estimated raft round-trips per hour for each crossing site.
- d. Number of routes per site.
- e. River frontage at each site.
- f. Number of centerlines per site.
- g. Total number of raft loads crossed per hour.

- h. Graphic representation of the division crossing area.

D-5 DIVISION RIVER CROSSING TIMELINE

- a. Preparation time for each crossing site.
- b. Crossing time per battalion at each site.
- c. Start and completion times for all river crossing actions.

DE-1 ENGINEER BRIGADE ENGINEER BATTLEFIELD ANALYSIS

- a. Terrain overlays and analysis.
 - 1) Surface configuration overlay.
 - 2) Vegetation overlay.
 - 3) Surface materials analysis (soils).
 - 4) Obstacle overlay.
 - 5) Transportation overlay.
 - 6) Urban area overlay.
 - 7) Cross-country movement overlay.
- b. Digitized terrain updates for the AO (Terra Base software updates).
- c. Engineer resources available to the division.
- d. Maneuver unit mechanical assets for overcoming obstacles.
- e. Estimated total engineer capability for the division.

B-1 BRIGADE TACTICAL STANDARD OPERATING PROCEDURES.

- a. Habitual command and support relationships.
- b. Obstacle and SCATMINE location reporting.
- c. Requests for additional assets.
- d. Transportation of supplies and equipment from the brigade rear to forward battalions.
- e. Engineer procedures.
 - 1) Priorities for support.
 - 2) SCATMINEs.
 - 3) Mobility.

- f. Logistics procedures.
 - 1) Reorganization and reconstitution.
 - 2) Supply (all classes).
 - 3) Services.
 - 4) Transportation of engineer equipment from the brigade rear boundary forward.
- g. Forward and rearward passage of lines.
- h. Brigade river crossings.
 - 1) Brigade C2 during river crossings.
 - 2) Organization of the crossing area.
 - 3) Engineer support to the crossing area.
 - 4) Composition of assault and support elements.
- i. Brigade breaches of obstacle systems.
 - 1) Brigade C2 during breaching operations.
 - 2) Organization of the AO.
 - 3) Composition of breach, assault, and support forces.
 - 4) Marking of breaches.
 - 5) Improvement of lanes and handover to follow-on units.
- j. Rehearsals.
- k. Safety.

ABE-1 BRIGADE RIVER CROSSING SITE FORCE BUILDUP MATRIX

- a. Preparation time for each crossing site and equipment.
- b. Type of crossing (e.g., ford, assault boat, assault swim, float bridge) at each site.
- c. Number of rafts per hour.
- d. Number of raft loads required to move "pure" combat battalions across the river at each site.
- d. Crossing time per battalion at each site.
- e. Start and completion times for all river crossing actions.
- f. A graphic representation of the crossing area.

ABE-2 COURSE OF ACTION RIVER CROSSING AREA OVERLAYS

- a. Brigade crossing area boundaries.
- b. Staging areas.
- c. Routes from the staging areas to crossing sites.
- d. Holding areas.
- e. Call-forward areas.
- f. Support by fire (SBF) positions.
- g. Bridge, raft, assault swim, assault boat, ford, landing zones for air assault (if in the crossing area) sites.
- h. Far-shore attack positions.

ABE-3 BRIGADE RIVER CROSSING OUTLINES FOR COAS

- a. Preparation time for each crossing site.
- b. Crossing time per battalion at each site.
- c. Start and completion times for all river crossing actions.

TF-1 BATTALION TASK FORCE OPORDS

- a. The Bn TF mission.
- b. The Bn TF commander's intent for the Bn TF.
- c. The Bn TF scheme of maneuver.
- d. The Bn TF decision support template.
- e. The Bn TF reconnaissance and surveillance (R&S) plan.
- f. The Bn TF fire support annex.
 - 1) Target list and overlay.
 - 2) Fire support coordination measures.
- g. The Bn TF scheme of engineer operations.
- h. The Bn TF subunit instructions.
- i. The Bn TF coordinating instructions.
- j. The Bn TF service and support paragraph and annex.

EB-1 ENGINEER BATTALION OPORD

- a. Situation.
 - 1) Friendly forces.
 - a) Engineer brigade.
 - (1) Mission.
 - (2) Commander's intent.
 - b) Adjacent engineer units.
 - (1) Mission.
 - (2) Commander's intent.
 - 2) Attachments and detachments.
- b. Engineer battalion mission.
- c. Execution.
 - 1) Engineer battalion commander's intent.
 - 2) Scheme of engineer operations.
 - 3) Tasks to subordinate units.
 - 4) Coordinating instructions.
- d. Service support.
 - 1) General concept of logistic support.
 - 2) Material and services.
 - a) Classes of supply.
 - b) Transportation routes and services.
 - 3) Medical evacuation and hospitalization.
 - 4) Personnel.
 - 5) Civil-military cooperation.
- e. Execution matrix.
 - 1) Phases of the engineer operation.
 - 2) Engineer unit subtasks by unit and phase.

- f. Movement annex.
- g. Engineer operations overlay.
- h. Decision support/situation template.
 - 1) Enemy events and targets.
 - 2) Friendly events.
 - 3) Engineer battalion commander's critical information requirements (CCIR).
 - 4) Time estimates to implement decisions which lead to critical requirements.

KEY OUTPUTS

B-2 BRIGADE WARNO

- a. The brigade mission statement.
- b. The brigade commander's intent.
- c. The brigade commander's critical information requirements.
- d. Graphics (e.g., FS, maneuver, obstacle).
- e. Projected TO of the brigade.
- f. Enemy situation.
- g. Assets available for collection of information and intelligence.

B-3 BRIGADE COMMANDER'S GUIDANCE

- a. The brigade commander's restated mission.
- b. The division and corps commanders' intents.
- c. The brigade commander's intent.
- d. COAs that the brigade commander wants considered.
 - 1) Engineer missions.
 - 2) TO of engineers.
 - a) Engineer battalion command and support relationships:
 - (1) Engineer assets that will organize with the brigade's Bn TFs.
 - (2) Engineer assets that will remain under brigade control.
 - (3) Engineer command and support relationships for specific tasks, events, or time.

- (4) Engineer and other mobility assets that will be under the engineer battalion's control.
- b) Distribution of non-brigade engineer assets supporting the brigade.
- c) Allocation of Bn TF mobility assets.
- 3) Priorities of engineer support.
- 4) Scheme of maneuver in overcoming obstacles:
 - a) Breach obstacles or cross river, either in-stride or deliberately.
 - b) Location(s) to breach obstacles or cross river.
- e. Logistics priorities (e.g., supply and transport of engineer supplies, maintenance and repair for the engineer battalion and other brigade pieces of mobility equipment).
- f. Time and place of the decision brief.
- g. Intelligence requirements (IR).
- h. The brigade CCIR.
- i. The brigade commander's risk assessment.

B-4 BRIGADE OPORD

- a. References.
 - 1) Necessary maps.
 - 2) Charts (e.g., river navigational charts, tide charts).
- b. Task organization.
 - 1) Command and support relationships for the brigade that support mobility operations.
 - a) Maneuver.
 - b) Engineer.
 - (1) Engineers from the divisional engineer brigade.
 - (2) Corps bridging units.
 - (3) Other corps engineer units.
 - c) FA units.
 - d) Air defense.

- e) MI collection assets.
- f) Chemical.
- g) Army aviation.
- h) Forward support battalion.
- 2) Effective time or times of command and support relationships.
- c. Situation paragraph.
 - 1) Weather forecasts and weather history for the AO.
 - 2) Terrain information (e.g., a general description of the terrain and its effects).
 - 3) Enemy COAs and timelines.
 - 4) Enemy obstacle capabilities:
 - a) SCATMINE capabilities.
 - b) Conventional mine capabilities.
 - c) Obstacle construction capabilities.
 - 5) Division mission.
 - 6) Division commander's intent.
 - 7) Missions of adjacent units.
- d. Brigade mission paragraph.
- e. Execution paragraph.
 - 1) Brigade commander's intent.
 - 2) Concept of the operation.
 - a) Brigade scheme of maneuver.
 - b) Brigade fires.
 - c) Engineer.
 - (1) Priority of support by unit.
 - (2) Priority of effort to:
 - (a) Mobility.
 - (b) Countermobility.

- (c) Survivability.
 - (3) Priority of SCATMINE support.
 - d) Organization of the brigade river crossing area.
- 3) Tasks to maneuver units (including mobility activities).
- 4) Tasks to combat support units.
 - a) Fire support.
 - (1) Air support.
 - (2) Chemical support.
 - (3) FA support.
 - (4) NGF support.
 - b) Air defense.
 - c) Chemical.
 - d) Combat engineer and engineer support.
 - e) Intelligence.
 - f) Military police.
- 5) Coordinating instructions.
 - a) Commander's critical information requirements.
 - (1) Priority IRs.
 - (2) Essential elements of friendly information.
 - (3) Friendly forces information requirements.
 - b) Timelines.
- f. Service support paragraph.
 - 1) Controlled supply rate for all classes of supply.
 - 2) Priorities of all classes of supply.
 - 3) Distribution of Class IV and V (demolition).
 - 4) Maintenance and/or recovery and evacuation priority.
- g. Command and signal paragraph.

- 1) Communications networks for river crossing area.
- 2) Locations for brigade commander, brigade command group, and brigade command posts.

h. Annexes.

- 1) Intelligence annex.
 - a) SITEMP.
 - b) Event template/matrix.
 - c) Combined obstacle overlay.
 - d) Avenue of approach overlay.
 - e) Modified combined obstacles overlay.
 - f) Information/intelligence collection plan.
- 2) Fire support annex.
 - a) Fire support execution matrix.
 - b) Target lists.
 - c) Schedules of fire.
 - d) Target attack guidance, spreadsheets, targets sheets.
 - e) Ammunition constraints.
- 3) Service support annex.
 - a) Availability and allocation of Class III, IV, V, and IX supplies.
 - b) Transportation.
 - (1) Transport of supply.
 - (2) Transport of equipment.
 - (3) Location of MSR.
 - c) Maintenance.
 - (1) Priority of maintenance (unit/equipment).
 - (2) Location of maintenance units.
 - (3) Collection points.
 - (4) Evacuation procedures and priorities.

- 4) Army aviation annex for aviation missions supporting mobility operations.
- 5) Engineer annex.
 - a) Task organization.
 - (1) Engineer units tasked to supported units or under engineer battalion control.
 - (2) Summary of low-density equipment.
 - (3) Availability and allocation of corps bridging assets.
 - (4) Changes to engineer TO that occur during the operation.
 - b) Situation.
 - (1) Enemy forces.
 - (a) Critical aspects of the terrain that impact on engineer operations.
 - (b) Enemy maneuver and engineer capabilities that impact on engineer operations.
 - (c) Enemy engineer capability/activity.
 1. Known and templated locations and activities of enemy engineer units.
 2. Significant enemy maneuver and engineer capabilities that impact on engineer operations.
 3. Expected enemy employment of engineers based on most probable enemy COA.
 - (2) Friendly forces.
 - (a) Designation, location, and activities of higher and adjacent engineers impacting on the supported unit or requiring coordination.
 - (b) Lists of non-engineer units capable of assisting in engineer operations.
 - c) Execution.
 - (1) Scheme of engineer operations.
 - (a) Concept of engineer operations to support the maneuver plan.
 - (b) Engineer tasks or main effort that support the supported unit's defeat mechanism.

- (c) Engineer main effort by mission and unit for each phase of the operation.
- (2) Subunit instructions.
 - (a) Engineer tasks for a specific subordinate engineer unit which are not in the basic OPORD.
 - (b) Engineer tasks which ensure unity of effort.
- (3) Coordinating instructions.
 - (a) Critical engineer instructions.
 - (b) Mission reports that are required.
- d) Service support.
 - (1) Classes of supply that impact on engineer support to mobility operations.
 - (2) Distribution plan for Class V (demolition) supplies.
 - (3) Allocation and priority of support for haul and airlift assets dedicated to engineer resupply.
 - (4) Requirements for brigades to supply transport of engineer equipment and supply.
- e) Command and signal.
 - (1) Location of key engineer leaders.
 - (2) Location and planned movements of engineer command posts.
 - (3) Engineer HQ that controls the engineer effort on an area basis.
- 6) A2C2 annex for the coordination of air movement supporting mobility operations.

TASK LIST

The purpose of this subcomponent is to identify, organize, and list in logical sequence all of the tasks and subtasks necessary to perform this function. Normally, the primary participants responsible for performing the task are identified. The tasks were extracted from the appropriate doctrinal publications and sources. The specific sources of reference for each task and subtask are shown in brackets [] following the task.

In many instances, the wording of the task has been changed from the text found in the ARTEP-MTP or FM to add clarity, context, or meaning. The references allow the user to refer to the original source material for further detail and context, if desired.

For tasks selected from an ARTEP-MTP, the task number has been expanded with a slash (/) to identify the subtask and standard reflected in the ARTEP-MTP task. To illustrate: a task referenced as [ARTEP 71-3-MTP, 71-3-4001/4c] was derived from ARTEP 71-3-MTP, the MTP for the Heavy Brigade Command Group and Staff, and identifies brigade S4 section task "71-3-4001, Conduct Logistical Planning," subtask "4," "Prepares plans and orders," standard or sub-element "c."

For tasks derived from a FM, the FM number and page number have been provided as a reference. For example, the reference for a task "The brigade commander demonstrates understanding of mission and higher commander's intent during confirmation briefing to the division commander" would be [FM 101-5, p. 1-9].

Some tasks and subtasks needed to define the function are not contained in ARTEP-MTPs, nor can they be derived from FMs. Tasks and subtasks were identified to fill such gaps and were developed during coordination visits with various Army schools, FORSCOM units, and CTCs. These tasks are listed as FNs and are annotated with their source. For example, tasks identified by CSS O/Cs at the NTC would be referenced as [FN-NTC CSS O/Cs]. Still other tasks and subtasks were identified based on review of newsletters and other documents published by the CALL, which capture LL from Army units relevant to doctrine, tactics, techniques, and procedures (DTTP). Tasks derived from CALL publications are referenced as [LL] with the appropriate document and page number provided. For example, a task extracted from CALL Newsletter 95-6, "National Training Center's 'Fighting with Fires'" is referenced as [LL-CALL Newsletter 95-6, p. 16].

In some cases, the analysis of the CCF resulted in the identification of tasks for which no doctrinal references could be determined. Such tasks were selected based on author experience and a careful study of relevant doctrine. These tasks are referenced as ANs.

Full references for all the source material are listed in the reference section.

PLANNING

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.

a. The brigade commander and brigade S3 direct and monitor mobility operations in the brigade AO. [AN].

1) The brigade commander and brigade S3 monitor the progress of Bn TF in overcoming obstacles, both in-stride and deliberate. [AN].

2) The brigade commander and brigade S3 monitor the progress of the brigade's engineer units in supporting divisional, brigade, and Bn TF mobility operations in the brigade AO. [AN].

3) The brigade commander and brigade S3 direct reallocation of mobility assets within the brigade to assist Bn TFs in deliberate and in-stride breaches and gap crossings. [AN].

4) The brigade commander and brigade S3 direct reallocation of combat support (CS) and CSS within the brigade to assist Bn TFs in deliberate and in-stride breaches and gap crossings. [AN].

5) The brigade commander and brigade S3 direct the brigade to take a tactical pause to plan and prepare for a brigade deliberate breach of an obstacle system, gap crossing, or river crossing. [AN].

b. The ABE monitors mobility operations: [AN].

1) The ABE monitors engineer units and their activities in the brigade sector (see Tasks 14 and 20 below). [AN].

2) The ABE updates information that supports engineer activities in the brigade sector (see Tasks 15 and 21 below). [AN].

3) The ABE disseminates information and coordinates engineer actions in the brigade sector (see Tasks 16 and 22 below). [AN].

4) The ABE refines the current mobility plan to support on-going operations (see Task 18 below). [AN].

c. The engineer battalion commander and engineer battalion staff direct and monitor engineer operations in the brigade AO. [ARTEP 5-145-MTP, Task: 05-1-0018].

1) The engineer battalion staff establishes and maintains C2 facilities. [ARTEP 5-145-MTP, Task: 05-1-0018/1].

2) The engineer battalion staff monitors engineer companies' status and mobility task progress while they are attached to or under the operational control (OPCON) of Bn TFs. [ARTEP 5-145-MTP, Task: 05-1-0018/2].

3) The engineer battalion maintains liaison with the brigade main command post (CP) and adjacent engineer units. [ARTEP 5-145-MTP, Task: 05-1-0018/1].

4) The engineer battalion commander and engineer battalion staff supervise the operations of subordinate elements. [ARTEP 5-145-MTP, Task: 05-1-0018/3].

d. Engineer units supporting the brigade are sustained. [AN].

1) Supply. [AN].

a) The brigade S4 monitors the supply levels (all classes) of the engineer battalion which is attached, OPCON, or in direct support (DS) of the brigade. [AN].

b) The brigade S4 tracks the request and delivery of equipment, supplies, and demolitions used to overcome obstacles to the Bn TFs and engineer battalion. [AN].

2) The brigade S4 monitors the recovery and repair of engineer mobility equipment and Bn TF mobility equipment. [AN].

3) The brigade S4 monitors and directs transportation operations to move mobility equipment and supplies to locations where they are needed. [AN].

2. The brigade receives an order initiating a mission from its higher HQ.

a. The ABE and the brigade engineer attend the division's order brief with the brigade commander, when required. [AN].

b. The ABE notifies the engineer battalion main CP of new orders and missions. [AN].

c. The engineer battalion main CP acquires an OPORD or fragmentary order (FRAGO) from the division's engineer brigade. [AN].

1) The engineer battalion staff identifies its TO and command and support relationships. [AN].

2) The engineer battalion staff begins parallel planning. [AN].

3) The ABE monitors the planning of the engineer battalion and identifies any conflicts between the engineer brigade's orders and the maneuver brigade's orders. [AN].

d. The engineer battalion commander (brigade engineer), engineer battalion S3, and engineer battalion S2 move to the brigade main CP to assist in mission planning. [AN].

3. The brigade commander and brigade staff conduct mission analysis.

a. The ABE analyzes components of the division's order and engineer annex.¹ [FM 5-100 (Final Draft), p. 7-2; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].

- 1) The division's mission. [FM 5-100 (Final Draft), p. 7-2].
- 2) Enemy and friendly situation and intelligence annex. [FM 5-100 (Final Draft), p. 7-2].
- 3) The brigade and engineer TO. [AN].
- 4) The division and corps commanders' intents. [AN].
- 5) The division's scheme of maneuver. [AN].
- 6) The division's scheme of engineer operations. [AN].
- 7) Subunit instructions for the brigade. [AN].
- 8) Coordinating instructions. [AN].
- 9) Service and support paragraph and annex. [FM 5-100 (Final Draft), p. 7-2].
- 10) Command and signal paragraph and annex. [AN].
- 11) Engineer annex. [FM 5-100 (Final Draft), p. 7-2].
- 12) Engineer brigade OPORD. [AN].

b. The ABE determines information from the analysis of the division order and annexes, which includes: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].

- 1) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
- 2) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
- 3) Engineer command and support relationships to be established with the maneuver brigade. [FM 5-71-3, p. 2-11].

a) Divisional engineer units attached, under OPCON, or in DS of the brigade. [AN].

¹ The brigade engineer (the engineer battalion commander) and his staff play an important role in the planning process. When they are available, the engineer battalion commander and S3 play a direct role in planning, acting as part of the brigade staff. However, the ABE is the brigade commander's primary staff engineer officer, and as such, he is the primary focus for training tasks found in this CCF. Some of the tasks listed for the ABE may be performed with, or by, the brigade engineer, engineer battalion S3, and the engineer battalion S2.

b) Other engineer units supporting the brigade (e.g., corps, theater, or host nation engineer units). [AN].

4) Limitations. [FM 5-71-3, p. 2-11].

a) Restrictions. [FM 5-71-3, p. 2-11].

b) Constraints. [FM 5-71-3, p. 2-11].

5) Risk, as applied to the brigade's engineer capability. [FM 5-71-3, p. 2-11].

a) The probability of accomplishing the engineer mission with the given resources. [AN].

b) The amount of risk the division commander is willing to accept (e.g., the destruction of engineer assets) in accomplishing the mission. [FM 5-71-3, p. 2-18].

6) Time available, for use in the ABE's timeline, including: [FM 5-71-3, p. 2-11].

a) Time for the issuance of the brigade's OPORD. [FM 5-71-3, p. 2-18].

b) Time of the issuance of the engineer battalion OPORD. [FM 5-71-3, p. 2-18].

c) Movement times. [FM 5-71-3, p. 2-18].

(1) Start point times. [AN].

(2) Release point times. [AN].

d) Line of departure (LD) or be-prepared times. [FM 5-71-3, p. 2-18].

e) Times of scheduled rehearsals. [FM 5-71-3, p. 2-18].

f) Beginning of morning nautical twilight, sunrise, sunset, end of evening nautical twilight, and moon data (e.g., rise, set, and illumination). [FM 5-71-3, p. 2-18].

g) Division-imposed cut-off times for requesting additional mobility assets and supplies. [AN].

h) Effective times and locations for attachment and detachment of units (e.g., engineer battalion, corps bridging units) for the mission to overcome obstacles. [AN].

7) Essential engineer tasks. [FM 5-71-3, p. 2-11].

a. The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].

b. The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].

c. The ABE informs the engineer battalion commander and the engineer battalion S3 of the results of the brigade's mission analysis. [AN].

- d. The engineer battalion staff continues parallel planing. [AN].

4. The brigade issues a WARNO.

- a. The ABE provides engineer specific input to the brigade commander and brigade S3 for inclusion in the brigade's WARNO. [AN].
- b. The engineer battalion acquires a WARNO from the brigade and uses the information to continue parallel planning. [AN].
- c. The engineer battalion issues WARNO(s) to its subordinate units. [AN].
- d. The ABE identifies conflicts between the divisional engineer brigade's OPOD and the brigade's WARNOs to the engineer battalion. [AN].

1) Conflicts are reported to both the brigade S3 and the engineer battalion S3. [AN].

2) The brigade S3 and engineer battalion S3 coordinate with the division Operations Officer (G3), the engineer brigade S3, and the division engineer (DIVEN) to resolve the conflict. [AN].

3) The brigade commander coordinates with the division commander to resolve conflicts not resolved at the staff level. [AN].

5. The brigade commander issues his planning guidance to the brigade staff.

- a. The brigade commander's restated mission. [FM 5-71-3, p. 2-19].
- b. The division and corps commanders' intents. [FM 5-71-3, p. 2-19].
- c. The brigade commander's intent and end state. [FM 5-71-3, p. 2-19].
- d. The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].
 - 1) Engineer missions. [FM 5-71-3, p. 2-19].
 - 2) TO of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].
 - a) Engineer battalion command and support relationships: [FM 5-71-3, p. 2-19].
 - (1) Engineer assets that will organize with the brigade's Bn TFs. [AN].
 - (2) Engineer assets that will remain under brigade control. [AN].
 - (3) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].
 - (4) Combat, engineer, and other mobility assets that will be under the engineer battalion's control. [AN].
 - b) Allocation of Bn TF organic mobility assets. [AN].

- 3) Priorities of engineer support. [FM 5-71-3, p. 2-19].
- 4) Scheme of maneuver in overcoming obstacles: [AN].
 - a) Method the brigade commander desires to use to breach obstacles or conduct a river crossing (e.g., in-stride or deliberate). [AN].
 - b) Location(s) the brigade commander wants considered to breach obstacles or conduct a river crossing. [AN].
- e. Logistics priorities. [FM 5-100, p. 39].
 - 1) Supply and transport of engineer supplies. [AN].
 - 2) Maintenance and repair for the engineer battalion and other brigade mobility equipment. [AN].
- f. Time and place of the brigade staff decision brief. [FM 5-71-3, p. 2-19].
- g. IRs. [FM 5-71-3, p. 2-19].
- h. The brigade CCIR. [FM 5-71-3, p. 2-19].
- i. The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].
- j. The ABE sends the brigade commander's planning guidance to the engineer battalion S3. [AN].

6. The brigade staff prepares staff estimates.

- k. The ABE section prepares the engineer estimate using the engineer battlefield assessment (EBA). [FM 5-71-3, pp. 2-10 to 2-11; FM 5-71-100, pp. A-2 to A-6; ARTEP 5-145-MTP, Task: 05-1-0002].
 - 1) The ABE section analyzes the brigade AO including: [FM 5-71-3, p. 2-10; FM 5-71-100, pp. A-2 to A-3].
 - a) Analysis of weather on engineer operations. [FM 5-100, p. 105].
 - (1) Ambient light data. [FM 5-100, p. 105].
 - (2) Impact of weather on mobility/countermobility/survivability/sustainment engineering in the brigade AO. [FM 5-100, p. 105].
 - (3) Precipitation and temperature impact on trafficability. [FM 5-100, p. 105].
 - (4) Precipitation and temperature impact on rivers in the brigade's AO. [FM 5-100, p. 105].
 - (a) Depth. [FM 5-100, p. 105].
 - (b) Width. [AN].

- (c) Flow rate. [FM 5-100, p. 105].
- (d) Bank conditions. [FM 5-100, p. 105].
- (e) Tidal influences. [FM 5-100, p. 105].
- (f) Presence of ice (e.g., thickness, ice flows). [FM 5-100, p. 105].
- (5) Precipitation and temperature impact on the brigade's or enemy's ability to dig, breach, or emplace obstacles. [AN].
- (6) Fog and limited visibility impact on the positioning of obstacles. [FM 5-100, p. 105].
 - (a) Ability of the brigade or enemy forces to observe their own obstacles. [AN].
 - (b) Ability of the brigade or enemy forces to find the other's obstacles. [AN].
- (7) Engineer vehicle capability to operate with the brigade's combat vehicles during periods of limited visibility. [FM 5-100, p. 105].
- b) Analysis of terrain using the factors of observation, cover and concealment, obstacles, key terrain, and avenues of approach (OCOKA). [FM 5-100-15, p. A-3; FM 5-100, p. 105; ARTEP 5-145-MTP, Task: 05-1-0002/2].
 - (1) Observation and fields of fire (e.g., the impact of brigade or enemy obstacle placement). [FM 5-100, p. 105].
 - (2) Cover and concealment. [FM 5-100, p. 105].
 - (a) Vegetation. [FM 5-100, p. 105].
 - (b) Terrain relief. [FM 5-100, p. 105].
 - (c) Cover and concealment for engineer supply points and equipment parks. [FM 5-100, p. 105].
 - (3) Obstacles. [FM 5-100, p. 105].
 - (a) Locations and significance of existing obstacles (natural and manmade, friendly and enemy). [FM 5-100, p. 105].
 - (b) Potential enemy reinforcing obstacle locations. [FM 5-100, p. 105].
 - (c) Impact on mobility requirements for the brigade mission. [FM 5-100, p. 105].
 - (4) Key/decisive terrain. [FM 5-100, p. 105].
 - (a) Dominant terrain. [AN].

- (b) Key bridges. [AN].
- (c) Ford sites. [AN].
- (d) Passage ways through constricted areas. [AN].
- (e) Potential engineer tasks required to facilitate friendly control of the terrain. [AN].
- (5) Avenues of approach: Determines engineer requirements to support rapid movement of combat, CS, and CSS elements along avenues of approach. [FM 5-100, p. 105].
- c) Assessment of other mobility characteristics of terrain: [FM 5-100, p. 105].
 - (1) Hydrography of rivers, lakes, and streams. [FM 5-100, p. 105].
 - (2) Man-made obstacles (e.g., railroad cuts and embankments and other linear transportation barriers). [FM 5-100, p. 105].
 - (3) Materials used in buildings and bridges. [FM 5-100, p. 105].
 - (4) Soil composition and its effects on: [AN].
 - (a) The ability to build obstacles. [AN].
 - (b) The ability to bury mines. [AN].
 - (c) The ability to use mechanical devices to clear mines and other obstacles. [AN].
 - (5) Natural obstacles to movement (e.g., rock fields, marshes, sand dunes, etc.). [AN].
- d) Advantages and disadvantages of the terrain for friendly movement and maneuver. [FM 5-100-15, p. A-3; FM 5-71-3, p. 2-10].
- e) Advantages and disadvantages of the terrain for the enemy's terrain reinforcement. [FM 5-100-15, p. A-3; FM 5-71-3, p. 2-10].
- f) Conclusions about the terrain's impact on accomplishing the brigade mission. [FM 5-100-15, p. A-3].
- 2) The ABE section analyzes possible enemy COAs using the brigade S2's estimate and SITEMP. [FM 5-71-3, p. 2-10; FM 5-71-100, p. A-5; ARTEP 5-145-MTP, Task: 05-1-0002/2].
 - a) The ABE section determines enemy: [FM 5-100, p. 105].
 - (1) Strength. [FM 5-100, p. 105].
 - (2) Disposition. [FM 5-100, p. 105].

- (3) Capabilities. [FM 5-100, p. 105].
- (4) Recent and present significant activities. [FM 5-100, p. 105].
- (5) Likely COAs. [FM 5-100, p. 105].

b) The ABE section analyzes enemy engineer capabilities and activities to determine: [FM 5-100, p. 105].

- (1) Availability and capabilities of enemy countermobility equipment. [FM 5-100, p. 105].
- (2) Enemy tactics for employing obstacles. [FM 5-100, p. 105].
- (3) Enemy techniques for employing obstacles. [FM 5-100, p. 105].
- (4) Enemy use of SCATMINES. [FM 5-71-3, p. 2-16].
- (5) Enemy use of special weapons (e.g., chemical and nuclear mines). [AN].

3) The ABE assesses the brigade's mobility resources (engineer battalion assets and assets organic to the brigade's Bn TFs) to support the brigade's mission. [FM 5-71-3, p. 2-11; FM 5-71-100, p. A-6; ARTEP 5-145-MTP, Task: 05-1-0002/2].

a) The ABE determines the current brigade situation using the following information: [FM 5-71-100, p. A-7].

- (1) The disposition of Bn TFs and their trains. [FM 5-100, p. 105].
- (2) The possible mobility tasks to support possible brigade COAs (e.g., known/suspected enemy barrier systems or a large river on the brigade axis of advance, etc.). [FM 5-100, p. 105].
- (3) On-going brigade operations and their requirements for engineer support and the use of the brigade's Bn TF's mobility equipment. [FM 5-100, p. 105].

b) The ABE estimates mobility assets available for the mission based on the brigade TO and maintenance reports: [FM 5-71-100, p. A-7].

- (1) The current engineer dispositions for the supporting engineer battalion, the engineer brigade, and corps engineer units supporting the division. [FM 5-100, p. 106].
- (2) The number and types of engineer equipment available in the engineer battalion supporting the brigade. [AN].
- (3) The number and types of engineer equipment available in other engineer units that can be requested for support. [AN].
- (4) The levels of effectiveness and capabilities of the available engineer units. [FM 5-100, p. 106].

- (5) The command or support relationships assigned in the division order between engineer units and maneuver units (e.g., to the division allocation of engineer resources to the brigade at prescribed times or events). [FM 5-100, p. 106].
- (6) The organic breaching capability of the brigade's Bn TFs (e.g., the number of plows and rollers). [FM 5-71-3, p. 3-4].
- (7) The availability of other combat/CS units that can assist with mobility operations: [FM 5-100, p. 106].
 - (a) The FA units to provide destructive and obscurative fires. [FM 5-100, p. 106].
 - (b) Chemical units to provide reconnaissance and obscurant support. [FM 5-100, p. 106].
 - (c) Army aviation units to provide reconnaissance, mobility, and direct fires. [FM 5-100, p. 106].
 - (d) United States Air Force (USAF) units to provide reconnaissance and fires. [FM 5-100, p. 106].
 - (e) Intelligence units to provide information on enemy situation. [AN].
- c) The ABE determines critical logistical resources and their availability. [FM 5-71-100, p. A-7].
 - (1) The ABE determines the current dispositions of logistical units and supply points that supply engineer specific supplies (Class IV and Class V). [FM 5-100, p. 106].
 - (2) The ABE determines the engineer supply requirements to support overcoming obstacles. [FM 5-71-3, p. 3-4].
 - (3) The ABE determines the amount of engineer Class IV and Class V supply items available to support the mission. [FM 5-100, p. 106].
 - (4) The ABE determines the transportation resources required to move engineer supplies and equipment to their point of usage. [FM 5-100, p. 106].
- 4) The ABE estimates the total engineer capability available to the brigade based on the current brigade situation, the mobility assets available, and the logistical situation. [FM 5-71-100, p. A-6].
- 5) The ABE develops a crossing site overlay and a crossing site force buildup matrix to provide initial river crossing buildup rate information for possible schemes of maneuver. [FM 90-13, p. A-1].
 - a) The crossing site force buildup matrix includes: [FM 90-13, p. A-6].
 - (1) Possible crossing sites in the brigade's sector. [FM 90-13, p. A-6].

- (2) Preparation time of: [FM 90-13, p. A-6].
 - (a) River banks. [FM 90-13, p. A-6].
 - (b) Rafts. [FM 90-13, p. A-6].
 - (c) Fords. [FM 90-13, p. A-6].
 - (d) Bridges (includes repair of existing bridges). [FM 90-13, p. A-6].
- (3) Number of rafts crossing per hour. [FM 90-13, p. A-6].
- (4) Number of raft crossings, cumulative by H-hour sequence. [FM 90-13, p. A-6].
- (5) Start and finish times (H-hour sequence) for the crossing of Bn TF-sized units. [FM 90-13, p. A-6].
- b) The crossing area overlay includes: [FM 90-13, p. A-7].
 - (1) Staging areas. [FM 90-13, p. A-7].
 - (2) Routes in the crossing area. [FM 90-13, p. A-7].
 - (3) Holding areas. [FM 90-13, p. A-7].
 - (4) Call forward areas. [FM 90-13, p. A-7].
 - (5) Crossing sites. [FM 90-13, p. A-7].
 - (6) Assault sites. [FM 90-13, p. A-7].
 - (7) Far-shore attack positions. [FM 90-13, p. A-7].
 - (8) SBF positions. [FM 90-13, p. A-7].
- b. The brigade S2, with the ABE and the engineer battalion S2, integrates terrain and enemy information into the intelligence estimate and intelligence products including: [ARTEP 71-3-MTP, Task: 71-3-2001/2; FM 5-71-3, p. 2-16].
 - 1) A MCOO. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - 2) A doctrinal template for the brigade AO. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - 3) An enemy order of battle which identifies: [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - a) Areas where the enemy will likely construct obstacles. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - b) Areas where the enemy will likely use SCATMINES. [ARTEP 71-3-MTP,

Task: 71-3-2001/2].

c) Locations where the enemy will likely defend along rivers to deny crossings by the brigade. [ARTEP 71-3-MTP, Task: 71-3-2001/2].

d) How the enemy will defend or attack. [ARTEP 71-3-MTP, Task: 71-3-2001/2].

4) A SITEMP for each enemy COA, which depicts: [ARTEP 71-3-MTP, Task: 71-3-2001/3].

a) Enemy tactical and protective obstacle efforts. [ARTEP 71-3-MTP, Task: 71-3-2001/2].

b) Enemy use of SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-2001/2].

c) Enemy defense of rivers and gaps. [AN].

c. The ABE recommends named areas of interest (NAIs) and target areas of interest (TAIs) to the brigade S2 for: [AN].

1) Inclusion in the brigade R&S plan. [AN].

2) Identification of PIRs and IRs needed for mobility operations. [AN].

d. The brigade S2 prepares a brigade R&S plan, for approval by the brigade S3, that specifies mobility targets. [FM 5-71-3, p. 2-16].

1) The brigade R&S plan includes tasks directed to the Bn TFs: [AN].

a) Observe/reconnoiter NAIs and TAIs for the enemy's use of obstacles and obstacles' characteristics. [AN].

b) Find bypasses around enemy obstacles. [AN].

c) Reconnoiter proposed/selected brigade breach sites and areas where Bn TFs may maneuver or position. [AN].

d) Reconnoiter proposed/selected brigade river crossing sites and the crossing area (e.g., assembly areas, routes, staging areas, holding areas, etc.). [AN].

2) The R&S tasks which cannot be performed by brigade assets are submitted as requests to division or higher; reconnaissance assets include: [AN].

a) MI assets. [AN].

b) USAF. [AN].

c) Army aviation. [AN].

d) Division cavalry squadron. [AN].

e) Division and corps long-range surveillance units. [AN].

f) Special operations forces. [AN].

e. The ABE gives copies of the brigade engineer estimate to the other members of the brigade staff for inclusion in their estimates. [AN].

- 1) The brigade S3 for the commander's/operations estimate. [AN].
- 2) The brigade S4 for the logistics estimate. [AN].
- 3) The brigade FSO for the FS estimate. [AN].
- 4) The brigade CHEMA for the NBC estimate. [AN].

7. The brigade staff develops courses of action.

a. The brigade S3 and brigade staff develop a scheme of maneuver for each defensive COA (e.g., defend, delay, withdrawal, rearward passage of lines). [AN].

- 1) A coordinated movement sequence is developed for: [AN].
 - a) A covering force battle handover. [AN].
 - b) Movement to supplementary positions. [AN].
 - c) Positioning of counterattack forces. [AN].
 - d) Movement of reserves. [AN].
 - e) Withdrawal of units. [AN].
 - f) Rearward passage/movement to assembly areas. [AN].
- 2) Routes are identified. [AN].
- 3) Critical engineer tasks are identified. [AN].
- 4) Obstacle placement and execution considers brigade mobility requirements for counterattacks. [AN].

b. The brigade S3 and brigade staff develop a scheme of maneuver for each offensive COA (e.g., attack, movement to contact, breakout, forward passage of lines). [AN].

- 1) A coordinated movement sequence is developed: [AN].
 - a) Routes are identified for movement. [AN].
 - b) Maneuver requirements of brigade units are identified from the LD through actions on the final objective. [AN].
- 2) A breaching, gap crossing, river crossing operation requirement is confirmed. [FM 5-71-3, p. 3-4].
- 3) Criteria for bypass or in-stride breach are established. [AN].

4) Points of penetration into enemy obstacles and river crossing sites are identified. [AN].

5) Support, breach, and assault forces, and their actions, are identified for a deliberate breach. [AN].

6) A smoke/obscuration employment plan is developed, integrating: [AN].

a) FA and Bn TF mortars. [AN].

b) Smoke/decontamination (SMK/DECON) platoon. [AN].

c) Bn TF organic smoke generating capabilities. [AN].

7) Engineers are integrated into maneuver formations to maintain momentum, with the bulk of mobility assets with the breach force. [AN].

8) Engineers and maneuver units are tasked to emplace obstacles and mines to protect the brigade flanks and block enemy counterattacks. [AN].

c. The brigade S3 and brigade staff develop recommendations to organize the brigade for combat. [AN].

1) Lead Bn TFs are task-organized with at least one company of engineers. [AN].

2) The brigade S3 task organizes and sequences the Bn TFs to execute brigade in-stride (Bn TF deliberate or in-stride) breaches or river crossings as part of the brigade's maneuver. [AN].

3) Security is provided for engineer elements not task-organized with Bn TFs and assigned mobility missions (e.g., the engineer battalion organized as a breach force for a brigade deliberate breach). [FM 71-123, p. 3-21].

4) The AD assets are task organized and/or positioned to provide AD coverage of engineer bridging equipment, breaching sites, and river crossing sites. [AN].

5) A brigade crossing area commander, normally the brigade XO, is identified when necessary. [FM 90-13, p. 4-1].

6) A brigade crossing area engineer, normally the battalion commander of the supporting corps' bridging unit, is identified when necessary. [FM 90-13, p. 4-1].

7) The brigade S3 and brigade engineer develop a TO for Bn TFs and engineers to accomplish the brigade's breaching/crossing using the following criteria: [AN].

a) The brigade support force: [AN].

(1) Has a combat-power ratio of 3:1 over the enemy to be suppressed. [FM 71-3, p. 4-39].

(2) Is a tank-heavy force. [AN].

(3) Can isolate the breach zone with direct and indirect fires. [FM 71-3, p. 4-39].

- (4) Has chemical smoke platoons and forward observers (FOs) for controlling smoke. [FM 71-3, p. 4-39].
- (5) Has AD assets to provide coverage of the near side of the breach. [FM 71-3, p. 6-42].
- b) The brigade breach force: [AN].
 - (1) Is task-organized with engineers (one platoon per lane) and maneuver forces with mobility assets (e.g., rollers, plows). [FM 71-3, p. 4-39].
 - (2) Can create two lanes per Bn TF through the obstacles. [FM 71-3, p. 4-39].
 - (3) Has 50% more breaching assets assigned beyond what is required to accomplish the breach (e.g., one engineer platoon). [FM 71-3, p. 4-39].
 - (4) Is organized and equipped to reduce a variety of obstacles. [FM 71-3, p. 4-40].
- c) The brigade crossing area forces: [AN].
 - (1) Have sufficient float-bridge companies to build two bridges (one corps float-bridge company per 100 meters of river width). [FM 90-13, p. A-1].
 - (2) Include engineers with the brigade crossing area forces to prepare crossing site entries and exits. [FM 71-3, p. 6-41].
 - (3) Have MP to direct traffic in the brigade crossing area. [FM 71-3, p. 6-40].
 - (4) Have AD elements to provide coverage of the near side of the river. [FM 71-3, p. 6-42].
 - (5) Have additional signal resources to command and control the crossing area. [AN].
- d) The brigade assault force: [AN].
 - (1) Has a combat power ratio of 3:1 over the enemy. [FM 71-3, p. 4-39].
 - (2) Is a mechanized-infantry-heavy force in a river crossing. [AN].
 - (3) May be combined with the brigade breach force if the enemy force is small. [FM 71-3, p. 4-39].
 - (4) Has AD elements to provide coverage on the far side of the breach/river. [FM 71-3, p. 6-42].
 - (5) Has sufficient direct fire and indirect FS capability to suppress and destroy the enemy on the far side of the breach. [FM 71-3, p. 4-39].

- (6) Has engineer assets to clear obstacles on the far side of river. [FM 71-3, p. 6-41].
- e) The follow-and-support forces: [FM 71-3, p. 6-45].
 - (1) Have sufficient combat and CS forces to reinforce the brigade assault or crossing force. [FM 71-3, p. 6-45].
 - (2) Contain CSS forces to resupply the brigade assault force. [FM 71-3, p. 6-45].
- d. The ABE develops an engineer operational concept which meets the brigade commander's intent and guidance for the use of engineers; the concept allocates: [FM 5-71-3, p. 2-11].
 - 1) Engineers and mobility equipment for river crossings. [AN].
 - 2) Engineers and mobility equipment for breaching obstacle systems. [AN].
 - 3) Engineers and mobility equipment for maintaining routes and lateral communications in the brigade sector. [AN].
 - 4) Engineer assets for support of division deception operations. [ARTEP 71-3-MTP, Task: 71-3-8004/1].
 - 5) A river crossing timeline for each COA, constructed by the ABE, calculating: [FM 90-13, p. A-1].
 - a) The number of vehicles in companies (before TO) crossing the river (not including trains). [FM 90-13, p. A-1].
 - b) The number of raft loads for each unit. [FM 90-13, p. A-1].
 - c) The crossing time per unit. [FM 90-13, p. A-1].
- e. The brigade FSO develops COAs to support mobility operations by allocating: [FM 71-3, p. 6-41; AN].
 - 1) The FS assets for suppression or destruction of enemy forces defending the breach or crossing site. [FM 71-3, p. 6-41].
 - 2) Smoke missions to deceive the enemy of breaching or crossing sites. [FM 71-3, p. 6-41].
 - 3) Smoke missions to obscure enemy observation of breach or crossing sites. [AN].
 - 4) Counterbattery radar (call-for-fire zones) to identify enemy artillery opposing a breach or crossing. [FM 71-3, p. 6-41].
 - 5) Indirect fires to disrupt enemy counterattacks against breaching or river crossing sites. [FM 71-3, p. 6-41].

- 6) Indirect fires to block movement of enemy reinforcements. [AN].
 - 7) Indirect fires for final protective fires to protect a bridgehead or breach-head. [FM 71-3, p. 6-41].
 - 8) Indirect fires to support the brigade's maneuver to the breaching or crossing site. [FM 71-3, p. 6-41].
 - f. The brigade CHEMA develops COAs to support mobility operations. [AN].
 - g. The brigade S4 and brigade S1 develop CSS COAs to support mobility operations by allocating: [FM 5-71-3, p. 3-4].
 - 1) Recovery vehicles. [FM 5-71-3, p. 3-4].
 - 2) Replacement vehicles and personnel. [FM 5-71-3, p. 3-4].
 - 3) Medical assets (ambulances). [ARTEP 71-3-MTP, Task: 71-3-1301/1].
 - h. The brigade S2 depicts enemy information on intelligence products for each brigade COA, which includes: [FM 5-71-3, p. 3-4].
 - 1) Location of enemy obstacles. [FM 5-71-3, p. 3-4].
 - 2) Enemy defense and reinforcement of natural obstacles. [FM 5-71-3, p. 3-4].
 - 3) Enemy missions and combat capabilities. [FM 5-71-3, p. 3-4].
 - a) Enemy unit and weapons locations. [FM 5-71-3, p. 3-4].
 - b) Enemy engagement areas (EAs), fire sacks. [FM 5-71-3, p. 3-4].
 - c) Enemy countermobility capabilities. [FM 5-71-3, p. 3-4].
 - i. The ABE informs the engineer battalion S3 of the brigade's COAs. [AN].
- 8. The brigade staff and brigade commander analyze courses of action (war game).**
- a. The brigade XO or brigade S3 presides over the war gaming of each selected COA. [FM 101-5, p. 4-26].
 - b. The ABE war games each engineer COA to ensure that the mobility requirements of each scheme of maneuver can be accomplished. [FM 5-100, p. 106].
 - 1) The ABE identifies critical engineer tasks to support each scheme of maneuver. [FM 5-71-3, p. 3-4].
 - 2) The ABE determines an engineer priority of effort. [FM 5-71-3, p. 2-11].
 - 3) The ABE verifies engineer TO requirements. [FM 5-71-3, p. 2-11].
 - 4) The ABE verifies mobility support requirements for other brigade units. [FM 5-100, p. 106].

5) The ABE compares engineer resource requirements with assets available to determine if the COA is supportable. [FM 5-100, p. 106].

6) The ABE determines differences in river crossing COAs by comparing timelines, brigade site overlays, and crossing overlays. [FM 90-13, p. A-2].

7) The ABE determines sequence of engineer activities. [FM 5-100, p. 106].

8) The ABE determines engineer alternatives: [AN].

a) Alternate routes which bypass obstacles. [FM 5-100, p. 106].

b) Other engineer COAs that can achieve the desired mobility support and accomplish the brigade mission. [FM 5-100, p. 106].

c) Times and/or events for the shifting of engineer units and assets (e.g., TO changes). [FM 5-71-3, p. 2-12].

d) Times and/or events for the shifting of engineer priorities. [FM 5-71-3, p. 2-12].

9) The ABE determines risks to engineer units and the mobility concept for each COA. [FM 5-71-3, p. 2-12].

10) The ABE determines engineer and mobility requirements which exceed the brigade's capability. [FM 5-71-3, p. 2-12].

c. The ABE determines which scheme of engineer operations best supports each brigade COA. [FM 5-71-3, p. 2-12].

d. The brigade FSO war games FS for the support of mobility operations. [AN].

1) The brigade FSO ensures that the brigade concept of fires provides the required support to: [FM 5-71-3, p. 3-4].

a) Bn TFs conducting battalion-level breaches, gap crossings, or river crossing operations. [FM 5-71-3, p. 3-4].

b) Brigade deliberate and in-stride breaches, gap crossings, or river crossing operations. [FM 5-71-3, p. 3-4].

2) The brigade FSO verifies that FOs are positioned with the assault and support forces. [FM 71-3, p. 6-41].

3) The brigade FSO verifies that enemy avenues of approach into a bridgehead are targeted with SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-8003; FM 71-3, p. 6-41].

4) The brigade FSO verifies that enemy SCATMINE delivery systems are targeted. [FM 5-71-3, p. 3-4].

5) The brigade FSO coordinates with the brigade S3 to ensure that Bn TFs conducting battalion-level breaches, gap crossings, or river crossings have priority of fires. [FM 5-71-3, p. 3-4].

6) The brigade FSO coordinates with the brigade S3 to ensure that the brigade support force for brigade deliberate or in-stride breaches, gap crossings, or river crossings has priority of fires. [FM 71-3, p. 4-39].

7) The brigade FSO ensures that counterbattery radar cues are identified to locate enemy artillery delivering fires during breaching operations. [AN].

8) The brigade FSO determines fires (smoke, suppressive, and destructive) to support brigade controlled breaches. [FM 5-71-3, p. 3-4].

9) The brigade FSO determines fires (smoke, suppressive, and destructive) to support the brigade's assault as part of a division river crossing. [FM 5-71-3, p. 3-4].

10) The brigade FSO determines electronic warfare actions to support the brigade assault. [AN].

11) The brigade FSO coordinates with the brigade S3 and CHEMA to synchronize maneuver and obscuration by smoke. [AN].

e. The brigade CHEMA war games COAs to support mobility operations. [FM 71-3, p. 2-8].

1) The brigade CHEMA determines the location and coverage for smoke targets (breach/crossing sites and deception targets). [FM 71-3, p. 2-8].

2) The brigade CHEMA determines the time period of smoke missions. [FM 71-3, p. 2-8].

a) Starting event or time for the initiation of smoke missions. [FM 71-3, p. 2-8].

b) Ending event or time for stopping smoke missions. [FM 71-3, p. 2-8].

c) Estimated duration time of smoke missions. [FM 71-3, p. 2-8].

3) The brigade CHEMA determines visibility requirements. [FM 71-3, p. 2-8].

4) The brigade CHEMA determines required resources (e.g., fog oil, smoke generators, smoke pots) to execute the required smoke mission. [AN].

5) The brigade CHEMA coordinates with the brigade S3 and FSO to synchronize maneuver, FS delivered smoke, and generated smoke. [AN].

f. The brigade S1 and S4 war game CSS COAs for mobility operations. [FM 5-71-3, p. 3-4].

1) The brigade S4 verifies supply requirements for overcoming obstacles or river crossings. [FM 5-71-3, p. 3-4].

a) Class V with the brigade FSO. [AN].

b) Class V (demolitions) with the ABE. [AN].

c) Class III (fog oil and fuel) and Class V (smoke pots) with the brigade CHEMO. [AN].

2) The brigade S4 confirms the delivery location and timing of logistical packages (LOGPACs) to support engineer, FS, chemical, and maneuver forces. [AN].

3) The brigade S4 verifies the positioning of recovery vehicles. [AN].

4) The brigade S4 and S1 analyze the methods for replacing lost engineer vehicles, mobility equipment, and personnel. [AN].

5) The brigade S1 and the brigade surgeon analyze the treatment and evacuation of casualties based on projected casualty estimates. [ARTEP 71-3-MTP, Task: 71-3-1301/1].

g. The brigade S2 war games enemy countermobility operations. [FM 5-71-3, p. 3-4].

1) The brigade S2 verifies enemy capabilities and locations where he may employ: [FM 5-71-3, p. 3-4].

a) Obstacles. [FM 5-71-3, p. 3-4].

b) SCATMINES. [FM 5-71-3, p. 3-4].

c) NBC weapons. [FM 5-71-3, p. 3-4].

2) The brigade S2 assesses potential enemy responses to the brigade's attempts to bypass obstacles. [FM 5-71-3, p. 3-4].

3) The brigade S2 assesses potential enemy actions against the brigade's efforts to overcome obstacles. [FM 5-71-3, p. 3-4].

h. The ABE informs the engineer battalion S3 of the COA war game results. [AN].

9. The brigade staff compares courses of action.

a. For each COA, the ABE is prepared to inform the brigade commander and the brigade staff of: [AN].

1) The COA which can best achieve the brigade's mobility requirements. [AN].

2) COAs that are not supportable by the available brigade mobility capabilities. [AN].

3) Acceptable risks for engineers and the brigade's organic mobility assets. [FM 5-100 (Final Draft), p. B-10].

4) Requirements for additional engineer and maneuver mobility assets to mitigate risks. [FM 5-100 (Final Draft), p. B-10].

b. The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].

10. The brigade commander announces his decision.

- a. The brigade commander approves the mobility plan. [AN].
- b. The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include: [AN].
 - 1) The TO for the brigade maneuver units and engineers. [AN].
 - 2) Requests to division for additional engineer and mobility assets. [AN].
 - 3) Additions or changes to the plan's branches and sequels for brigade breaches and river crossings. [AN].
 - 4) The brigade's FS plan in support of mobility operations. [AN].
 - 5) The brigade's use of obscurants in support of mobility operations. [AN].
 - 6) The brigade's logistics plan in support of mobility operations. [AN].
- c. The ABE records the brigade commander's decision and guidance in detail and from that facilitates the production of the engineer annex and other products. [AN].
- d. The ABE informs the engineer battalion S3 of the brigade commander's decision. [AN].
- e. The engineer battalion staff continues parallel planning to develop the engineer battalion OPORD using the information provided by the ABE. [AN].

11. The brigade staff prepares the OPORD or FRAGO.

- a. The brigade S3 completes plans for actions at an obstacle (e.g., obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].
 - 1) The employment of mobility assets is arranged in time, space, and purpose to accomplish the brigade commander's intent. [AN].
 - 2) All BOS are arranged with regard to time, space, and purpose to ensure that mobility operations are fully supported. [AN].
 - 3) The C2 tools are developed to synchronize the brigade's actions to overcome obstacles. [AN].
 - a) The brigade decision support template (DST). [AN].
 - b) The brigade synchronization matrix. [AN].
 - c) The brigade execution matrix. [AN].
 - 4) Maneuver units are task-organized with engineers to ensure that brigade units can maintain mobility. [FM 71-123, p. 3-34].
 - 5) Unit and/or type of vehicle (equipment) priority for a river crossing during rafting and bridging phases is determined. [ARTEP 71-3-MTP, Task: 71-3-8004/1/2].

6) Requirements for employment of Bn TF mine plows and rollers are specified.
[AN].

7) Missions are assigned to subordinate elements as part of brigade deliberate breaches and river crossings (as part of a division river crossing). [AN].

a) The brigade support force is assigned missions to: [FM 90-13-1, p. 2-3].

- (1) Isolate the point of penetration or the river crossing site with fires, suppressing or destroying enemy forces covering the obstacle or crossing site. [FM 90-13-1, p. 2-3].
- (2) Fix the enemy in position, denying him the ability to maneuver and destroying any weapons capable of firing on the breaching or crossing force. [FM 90-13-1, p. 2-3].
- (3) Control obscuring smoke delivered by artillery, mortars, generators, and/or smoke pots. [FM 90-13-1, p. 2-3].

b) The brigade assault force is assigned missions to: [FM 90-13-1, p. 2-3].

- (1) Assist the support force in suppressing the enemy during a breaching operation. [FM 90-13-1, p. 2-3].
- (2) Seize objectives and destroy enemy forces on the far side of a breach or river crossing. [FM 90-13-1, p. 2-3].
- (3) Establish a breach-head/bridgehead. [FM 90-13-1, p. 2-3].

c) The brigade breach force is assigned missions to: [FM 90-13-1, pp. 2-3 to 2-4].

- (1) Create lanes through the obstacle. [FM 90-13-1, pp. 2-3 to 2-4].
- (2) Secure lodgement on the far side of the obstacle to allow deployment of the brigade assault force. [FM 90-13-1, pp. 2-3 to 2-4].
- (3) Mark and improve lanes through the obstacle. [FM 90-13-1, pp. 2-3 to 2-4].
- (4) Hand over lanes to follow-on units for continued improvement. [FM 90-13-1, pp. 2-3 to 2-4].

d) The brigade follow-and-support force is assigned missions to: [FM 71-123, p. 6-31].

- (1) Overwatch and provide direct and indirect FS. [FM 71-123, p. 6-31].
- (2) Secure the crossing site. [FM 71-123, p. 6-31].
- (3) Follow and continue the attack of the brigade assault force. [FM 71-123, p. 6-31].
- (4) Provide CSS support. [FM 71-123, p. 6-31].

e) The brigade crossing area HQ (established for division river crossings) and units are assigned missions to: [FM 90-13, p. 4-2].

- (1) Control movement and positioning of all elements transiting or occupying positions within the brigade crossing area. [FM 90-13, p. 4-2].
- (2) Provide security for elements at the crossing sites. [FM 90-13, p. 4-2].
- (3) Maintain the crossing site and staging areas. [FM 90-13, p. 4-2].

b. The brigade FSO completes plans for lethal and nonlethal fires to support the brigade's mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

1) The brigade FSO coordinates with the brigade CHEMO to plan the use of smoke to obscure breaches and river crossings. [FM 3-50, p. 17].

a) Smoke missions to screen the movement of the brigade's units. [FM 6-20-40, p. 3-19].

b) Smoke missions to obscure enemy observation and targeting. [FM 6-20-40, p. 3-19].

2) The brigade FSO targets known and suspected enemy observation and fighting positions overwatching breaching and river crossing sites. [FM 6-20-40, p. 3-19].

3) The brigade FSO assigns priorities of fires to support mobility operations to: [AN].

a) The Bn TFs conducting deliberate and in-stride breaches as part of the brigade's main effort. [AN].

b) The brigade support force while the brigade breach force clears lanes through the enemy obstacle system and establishes a lodgement on the far side of an obstacle. [AN].

c) The brigade assault force upon passing through the breach and continuing the brigade attack. [AN].

d) The brigade support force, during a river crossing, until a far-shore lodgement is established. [AN].

e) The brigade assault force, during a river crossing, upon establishing a far-shore lodgement. [AN].

f) The follow-on forces, upon their assault out of a far-shore lodgement. [AN].

4) The brigade FSO includes air and artillery delivered SCATMINES in the FS plan. [AN].

5) The brigade FSO prepares brigade FS synchronization tools: [AN].

a) The brigade FS execution matrix. [AN].

- b) The brigade target list. [AN].
- c) The brigade FS overlay. [AN].
- c. The brigade CHEMO completes plans for the employment of smoke in support of mobility operations. [AN].
 - 1) The brigade CHEMO coordinates with the brigade FSO and the smoke platoon leader for the use of smoke to obscure breaches and river crossings. [FM 3-50, p. 17].
 - 2) The brigade CHEMO sets the priority for the delivery of smoke. [ARTEP 3-117-40-MTP, Task: 3-4-0004/9].
 - 3) The brigade CHEMO provides information to the brigade S3 for inclusion in the brigade OPOD: [ARTEP 3-117-40-MTP, Task: 3-4-0004/10].
 - a) The type of smoke mission (e.g., screen, haze, obscuration). [AN].
 - b) Smoke targets (e.g., obscuration targets, screen location). [AN].
 - c) Smoke assets to use. [AN].
 - d) Size and duration of the smoke mission. [AN].
 - e) Time for emplacing smoke on target. [AN].
 - f) Location of primary and alternate smoke positions for the smoke platoon. [AN].
 - g) Allocation of matériel needed to support mobility missions. [AN].
 - (1) Smoke pots. [AN].
 - (2) Smoke generators. [AN].
 - (3) Fog oil. [AN].
 - (4) Artillery and mortar rounds. [AN].
- d. The brigade S4 and brigade S1 complete the plan for logistical support of mobility operations. [AN].
 - 1) The brigade S4 establishes: [AN].
 - a) Priorities for maintenance support and/or recovery and evacuation by unit and equipment type. [FM 101-5, p. H-76].
 - b) Delivery timing of mobility LOGPACs of high usage supplies (e.g., artillery and mortar smoke munitions, fog oil, mine clearing line charges (MICLIC)). [AN].
 - c) Delivery locations for mobility supply LOGPACs. [AN].
 - d) Priorities for all classes of supply. [CGSC Text 101-6, p. 1-19].

- e) Priorities for transportation of mobility equipment and supply. [AN].
 - 2) The brigade S1 and brigade surgeon complete a casualty treatment and evacuation plan to support brigade breaches and river crossings. [AN].
 - 3) The brigade S1 plans safety measures and checks for a river crossing. [AN].
- e. The ABE completes the plan for the brigade river crossing. [FM 90-13, p. A-2].
 - 1) The ABE constructs an initial vehicle-crossing capability chart for each crossing site; it includes: [FM 90-13, p. A-2].
 - a) Crossing means (e.g., bridge, ford, raft). [FM 90-13, p. A-2].
 - b) Trips per hour (rafts) for both day and night operations. [FM 90-13, p. A-2].
 - c) Vehicles per hour (bridges and fords). [FM 90-13, p. A-2].
 - d) An H-hour sequence of construction and number of vehicles crossing. [FM 90-13, p. A-2].
 - 2) The ABE determines Bn TF crossing periods using the crossing sites' capacity, brigade scheme of maneuver, and final TO of Bn TFs. [FM 90-13, p. A-2].
 - 3) The ABE adds Bn TF crossing periods to the initial vehicle-crossing capability chart. [FM 90-13, p. A-2].
 - 4) The ABE determines adjustments necessary in Bn TF crossing sites to ensure that the Bn TFs arrive on the far-shore by the times they are needed in the plan. [FM 90-13, p. A-2].
 - 5) The ABE coordinates adjustments in the Bn TF crossing sites with the brigade S3. [FM 90-13, p. A-2].
 - 6) The ABE develops C2 tools for the river crossing, including: [FM 90-13, p. A-1].
 - a) Crossing synchronization matrix. [FM 90-13, p. A-12].
 - b) Engineer execution matrix. [FM 90-13, p. A-13].
 - c) Crossing overlay. [FM 90-13, p. 6-6].
- f. The ABE prepares the brigade OPORD's engineer support subparagraph which contains: [ARTEP 71-3-MTP, Task: 71-3-3002/1].
 - 1) Engineer command and support relationships for maneuver units that are in consonance with the scheme of maneuver. [ARTEP 71-3-MTP, Task: 71-3-3002/1].
 - 2) Priority of engineer work. [ARTEP 71-3-MTP, Task: 71-3-3002/1].
 - 3) Engineer tasks. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

- 4) Priority of engineer support by unit. [ARTEP 71-3-MTP, Task: 71-3-3002/1].
- g. The ABE prepares the brigade OPORD's engineer annex which contains: [AN].
 - 1) The task-organization section, to include: [FM 5-71-3, p. D-7].
 - a) Engineer units task-organized with Bn TFs or under brigade control. [FM 5-71-3, p. D-7].
 - b) All engineer units supporting the brigade and units task-organized to other than their parent unit are listed. [FM 5-71-3, p. D-7].
 - c) Command and support relationships for brigade engineer units. [FM 5-71-3, p. D-7].
 - d) Times and/or events for changes in the engineer TO during the operation. [FM 5-71-3, p. D-7].
 - 2) The situation paragraph, to include: [FM 5-100 (Final Draft), p. C-7].
 - a) Critical terrain aspects that impact on engineer operations. [FM 5-100 (Final Draft), p. C-7].
 - b) Critical weather aspects that impact on engineer operations. [FM 5-100 (Final Draft), p. C-7].
 - c) Enemy engineer capability and activity. [FM 5-100 (Final Draft), p. C-7].
 - (1) Known and templated locations of enemy engineer units. [AN].
 - (2) Significant enemy maneuver and engineer capabilities that impact on engineer operations. [AN].
 - (3) Expected employment of enemy engineers based on the most probable enemy COA. [AN].
 - (4) Known and templated locations of enemy obstacles. [AN].
 - d) Friendly forces. [AN].
 - (1) Designation, location, and activities of the engineer brigade and adjacent engineer units that impact on the brigade or that require coordination. [AN].
 - (2) Non-engineer units capable of assisting in engineer operations. [AN].
 - (3) Non-engineer units capable of emplacing SCATMINES. [AN].
 - 3) The maneuver brigade's mission statement. [FM 5-100 (Final Draft), p. C-7].
 - 4) The execution paragraph, to include: [FM 5-71-3, pp. D-7 to D-9].
 - a) The scheme of engineer operations, including: [FM 5-71-3, pp. D-7 to D-9].

- (1) A description of engineer operations supporting the brigade maneuver plan. [FM 5-71-3, pp. D-7 to D-9].
- (2) The engineers' main effort by mission and unit for each phase of the brigade operation. [FM 5-71-3, pp. D-7 to D-9].
- (3) Division-level missions that impact on the brigade. [FM 5-71-3, pp. D-7 to D-9].
- b) Subunit instructions, including: [FM 5-71-3, pp. D-7 to D-9].
 - (1) Specific engineer company or platoon tasks not contained in the brigade OPORD. [FM 5-71-3, pp. D-7 to D-9].
 - (2) Engineer tasks necessary to ensure unity of effort. [FM 5-71-3, pp. D-7 to D-9].
 - (3) Brigade-level tasks assigned to the engineer battalion. [FM 5-71-3, pp. D-7 to D-9].
- c) Coordinating instructions, including: [FM 5-71-3, pp. D-7 to D-9].
 - (1) Critical engineer instructions common to two or more units of the brigade or the engineer battalion not covered in the brigade OPORD. [FM 5-71-3, pp. D-7 to D-9].
 - (2) Brigade PIR that must be reported to the engineer battalion staff and brigade engineer. [FM 5-71-3, pp. D-7 to D-9].
 - (3) Mission reports that the ABE requires. [AN].
- 5) The service support paragraph, to include: [FM 5-71-3, p. D-9].
 - a) Brigade allocations of command-regulated supply classes that impact on the engineer battalion's controlled supply rate (CSR). [FM 5-71-3, p. D-9].
 - b) Class V supply distribution plan. [FM 5-71-3, p. D-9].
 - (1) The supply method to be used for delivery of engineer company Class V. [FM 5-71-3, p. D-9].
 - (2) Tentative locations for Class V supply points or locations for linkup with corps' push packages. [FM 5-71-3, p. D-9].
 - c) Transportation. [FM 5-71-3, p. D-9].
 - (1) Allocation and prioritization of divisional and brigade assets dedicated to hauling the brigade's engineer Class V. [FM 5-71-3, p. D-9].
 - (2) Requirements for the brigade to supplement division transportation to move engineer equipment and supplies. [FM 5-71-3, p. D-9].
- 6) Health services support: Designates the support for corps engineer units performing missions in the brigade area. [FM 5-71-3, p. D-9].

- 7) Command and signal paragraph, to include: [FM 5-71-3, p. D-9].
 - a) Command. [FM 5-71-3, p. D-9].
 - (5) The location of key engineer leaders. [FM 5-71-3, p. D-9].
 - (6) The engineer chain of command. [FM 5-71-3, p. D-9].
 - (7) The Bn TFs designated for controlling specific engineer mobility efforts. [FM 5-71-3, p. D-9].
 - b) Signal. [FM 5-71-3, p. D-9].

- (1) Communication networks monitored by the brigade engineer for reports, if different than the brigade TSOP. [FM 5-71-3, p. D-9].
 - (2) Critical engineer reporting requirements of subordinates, if not covered in the coordinating instructions or TSOP. [FM 5-71-3, p. D-9].
 - h. The ABE submits requests for additional engineer and mobility assets through the brigade S3 (requests are forwarded to the division G3 and DIVEN). [FM 5-71-3, p. 2-12].

12. The brigade commander and brigade staff issue the operations/FRAGO to subordinate elements.

- a. The brigade S2 briefs: [AN].
 - 1) Intelligence estimate. [AN].
 - 2) MCOO. [AN].
 - 3) SITEMP. [AN].
 - 4) The brigade R&S plan. [AN].
- b. The brigade S3 briefs: [AN].
 - 1) The TO of the brigade. [AN].
 - 2) Concept of engineer employment. [AN].
 - 3) Specific mobility missions of the Bn TFs: [AN].
 - a) Support force. [AN].
 - b) Assault force. [AN].
 - c) Breaching force. [AN].
 - d) Follow-and-support force. [AN].
 - 4) Concept for movement and maneuver to the obstacle breaching or river crossing point. [AN].

- 5) Actions at the breaching or crossing site. [AN].
- 6) The C2 for the brigade crossing area. [AN].
- c. The brigade FSO briefs the FS plan for the brigade's mobility missions. [AN].
 - 1) The SCATMINE fires. [AN].
 - 2) Smoke. [AN].
 - 3) Fires on enemy forces covering the obstacles. [AN].
 - 4) Counterbattery fires. [AN].
 - 5) Fires on critical enemy reserves or counterattacking forces. [AN].
- d. The brigade engineer briefs: [AN].
 - 1) The Bn TF mobility tasks as part of a brigade breach or river crossing operation. [AN].
 - 2) Mission and actions of supporting engineer units (e.g., corps bridging unit). [AN].
 - 3) Missions of engineer units including changes to engineer company missions by event or time (e.g., change of command and support relationships). [AN].
- e. The brigade CHEMA briefs the employment and operations of attached chemical units supporting mobility operations (e.g., smoke). [AN].
- f. The brigade S4 briefs supply and maintenance support for mobility missions. [AN].
- g. All battalion commanders give the brigade commander a confirmation brief in which they demonstrate an understanding of their mobility, movement, and security missions. [AN].
- h. The brigade S3 section disseminates the brigade OPORD with overlays, FS execution matrix, and rehearsal schedule. [AN].
- i. Subordinate battalion staffs confirm and verify priorities and schedules for mobility activities, preparations, and rehearsals with the brigade staff. [AN].

PREPARATION

13. The brigade conducts reconnaissance.

- a. The brigade commander and brigade staff reconnoiter the brigade's AO, routes, and axes to gather information. [FM 71-123, p. 2-49].
- b. The brigade commander and brigade staff reconnoiter critical areas along the brigade's axes and routes. [FM 71-123, p. 2-49].
 - 1) The brigade commander and brigade staff reconnoiter the brigade AO to estimate the effects of terrain and obstacles on maneuver. [FM 71-123, p. 2-49].

2) The brigade commander and brigade staff reconnoiter breach and river crossing sites (if possible). [AN].

a) The brigade commander and brigade staff view the breach or crossing site from an enemy or a neutral vantage point. [AN].

b) The brigade commander and brigade staff reconnoiter terrain at the breach or crossing site to evaluate the brigade's scheme of maneuver. [AN].

c) The brigade commander and brigade staff reconnoiter enemy avenues of approach to the breach or crossing site to evaluate the enemy's possible actions. [AN].

d) The brigade commander and brigade staff reconnoiter areas where the brigade will maneuver or mass fires to counter enemy actions. [AN].

3) The brigade commander or a designated brigade staff officer reconnoiters areas where the enemy or the brigade can use SCATMINES. [AN].

b) Brigade units perform an engineer reconnaissance, reporting the condition, location, and bypasses of: [AN].

1) Special features and structures in the area: [AN].

a) Natural barriers to movement other than water. [AN].

(1) Location. [AN].

(2) Dimensions. [AN].

(3) Description. [AN].

(4) Bypasses. [AN].

b) Water barriers (see Task 13c). [AN].

2) Bridges. [AN].

a) Type and classification. [AN].

b) Length and width. [AN].

c) Location. [AN].

d) Condition. [AN].

e) Bypasses. [AN].

3) Tunnels and underpasses. [AN].

a) Length and width. [FM 5-34, p. 5-14].

b) Clearance. [FM 5-34, p. 5-14].

c) Location. [AN].

- d) Bypasses. [AN].
- 4) Roads and trails. [AN].
 - a) Surface material. [FM 5-34, p. 5-3].
 - b) Foundation. [FM 5-34, p. 5-3].
 - c) Width. [FM 5-34, p. 5-3].
 - d) Drainage. [FM 5-34, p. 5-3].
 - e) Surface conditions. [FM 5-34, p. 5-3].
 - f) Grades and curves. [FM 5-34, p. 5-3].
 - g) Drive-off capability. [AN].
 - h) Concealment. [AN].
- 5) Terrain features. [AN].
- c. Brigade units perform a river and gap crossing site reconnaissance. [AN].
 - 1) Existing bridges. [AN].
 - 2) Identification or confirmation of crossing sites. [AN].
 - 3) Enemy information from both sides of the crossing sites. [AN].
 - 4) Terrain information from both sides of the crossing sites. [AN].
 - 5) Location of suitable access and egress routes. [AN].
 - 6) Results of a route reconnaissance performed on routes in the brigade crossing area. [AN].
 - 7) River/gap information: [AN].
 - a) Width of stream bed. [FM 5-34, p. 5-15].
 - b) Actual width of water. [FM 5-34, p. 5-15].
 - c) Depth. [FM 5-34, p. 5-15].
 - d) Bottom conditions and profile. [AN].
 - e) Bank height and slope. [FM 5-34, p. 5-15].
 - f) Soil conditions and stability. [FM 5-34, p. 5-16].
 - g) Drainage. [FM 5-34, p. 5-16].
 - h) Obstructions (e.g., sandbars, floating debris). [FM 5-34, p. 5-16].

- i) Reinforcing obstacles. [AN].
- j) Water velocity. [AN].
- 8) Crossing site information: [AN].
 - a) Covered and concealed assembly areas. [AN].
 - b) Fighting positions for supporting weapons. [AN].
 - c) Fighting positions on the far side. [AN].
 - d) Positions that give the enemy observation and fields of fire on the far and near side. [AN].

d. Brigade units conduct an enemy obstacle reconnaissance and collect information. [AN].

- 1) Obstacle bypass routes or gaps in the obstacle system. [AN].
- 2) Specific types of obstacles found, including their locations, orientations, and dimensions. [AN].
- 3) Composition and construction of obstacles. [AN].
- 4) Composition, size, and location of enemy forces overwatching the obstacles. [AN].
- 5) Covered and concealed routes and approaches to the obstacle. [AN].
- 6) Best locations to breach the obstacle. [AN].
- 7) Assault positions for brigade breach and assault forces. [AN].
- 8) The SBF position for the brigade support force. [AN].

14. The brigade staff collects information for overcoming obstacles.

a. The brigade S2 and S2 section collect information on obstacles for updating intelligence products and answering CCIR, PIR, and IR. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

- 1) Intelligence summaries (INTSUM) from the division Intelligence Officer (G2). [AN].
- 2) Information from division and adjacent unit staffs which answer previously submitted information queries. [AN].
- 3) Spot reports (SPOTREP) from subordinate reconnaissance elements performing brigade R&S operations. [AN].
- 4) The SPOTREPs from Bn TF S2s. [AN].

5) Information from the brigade staff and liaison officers (LO) acquired from their counterparts in higher, adjacent, and parent units. [AN].

b. The brigade S3 and S3 section collect information for mobility operations. [AN].

1) Reports from subordinate units' on link-up and completion of task-organization. [FM 71-3, p. 6-44].

2) Subordinate units' OPORDs. [AN].

3) Reports from the Bn TFs and engineer battalion. [ARTEP 71-3-MTP, Task: 71-3-3006/1].

a) Strength reports (e.g., number of mobility assets ready). [ARTEP 71-3-MTP, Task: 71-3-3003/3].

(1) Maneuver unit mechanical breaching equipment status. [AN].

(2) Engineer equipment status. [AN].

(3) Engineer bridging unit status. [AN].

(4) FA status. [AN].

(5) Smoke unit status. [AN].

b) The status of the completion of preparation tasks. [ARTEP 71-3-MTP, Task: 71-3-3003/3].

c) The SPOTREPs on enemy obstacles found by Bn TF reconnaissance elements. [AN].

4) Requests for resources from subordinate units. [AN].

5) Recommendations from subordinate commanders for changes to their assigned missions. [AN].

6) Updated SITEMP, event template, and MCOO from the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-3003/2].

7) Information on brigade routes, staging areas, assault positions, SBF positions, and the best sites for breaching or crossing the obstacle. [ARTEP 71-3-MTP, Task: 71-3-3003/3].

8) Recommendations and changes for the FS plan from the brigade FSO. [ARTEP 71-3-MTP, Task: 71-3-3005/1].

9) Information from the ABE: [AN].

a) Updated EBA. [AN].

b) Recommendations and changes in the engineer battalion's mobility/counter-mobility missions. [AN].

- c) Reports of enemy minefield locations. [AN].
- d) Information from coordination visit(s) to the stationary force engineer for a passage of lines. [AN].
- 10) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-3003/3].
- c. The brigade FSO and FSE collect information on FS to support the mobility plan. [AN].
 - 1) Intelligence information, acquired from the division artillery (DIVARTY) S3 and the DS artillery battalion staff, on the locations of enemy units and FS assets that could influence the breach or crossing. [AN].
 - 2) Artillery status from the DS FA battalion. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - a) Location and status of firing batteries. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - b) Ammunition types and quantities. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - c) Availability of counterbattery radar. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - 3) The FS plans from Bn TF FSOs. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
 - 4) Refinements to SCATMINE employment from the ABE. [ARTEP 71-3-MTP, Task: 71-3-9002/3].
 - 5) Status reports on positioning and preparation status of observers. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - 6) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
- d. The ABE and ABE section collect information on engineer preparations for overcoming obstacles. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 1) The ABE and ABE section monitor engineer operations and preparation activities in the brigade area. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - a) Availability of engineer equipment. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - b) Availability of Bn TF rollers and plows. [AN].
 - c) Execution of the brigade obstacle plan in support of the brigade mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - d) Construction of combat routes and trails. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

e) Clearing and repairing of routes in support of tactical and logistical plans. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

2) The TO status of engineer assets. [AN].

3) Reports of enemy minefield locations. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

4) Intelligence information affecting mobility operations from the engineer battalion S2. [AN].

5) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

e. The brigade CHEMA and NBC section collect information on preparations to support the mobility plan. [AN].

1) The brigade CHEMA and NBC section monitor the supporting smoke unit's status: [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

a) Completion of the task-organization and implementation of command and support relationships. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

b) Status of personnel, equipment, and petroleum, oils, and lubricants (POL) for creating smoke. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

c) Location of the smoke unit. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

2) Weather forecasts from the brigade S2 section. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

3) Changes to projected locations of the smoke unit from the support force commander. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].

f. The brigade S4 and S4 section collect information on CSS preparations for overcoming obstacles. [AN].

1) The brigade S4 and S4 section monitor the delivery of Class V demolitions for mobility operations. [AN].

2) The brigade S4 and S4 section monitor the status of maintenance and servicing of mobility equipment of Bn TFs and engineer units. [AN].

3) The brigade S4 and S4 section collect requests for additional Class IV and V supplies for the engineer units from the engineer battalion S4 and Bn TF S4s. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].

4) The brigade S4 and S4 section monitor the delivery of Class III (fog oil) and V (smoke pots) to brigade units. [AN].

15. The brigade staff evaluates and updates staff products.²

- a. The brigade S2 and S2 section evaluate and update staff products: [AN].
 - 1) The brigade S2 and S2 section evaluate information and intelligence. [AN].
 - a) Enemy countermobility capabilities and dispositions are verified. [AN].
 - b) Enemy strengths and weakness are determined to confirm the best breach or crossing site. [AN].
 - c) Probable enemy COAs countering breaches or river crossings are confirmed. [AN].
 - d) Adjusted maneuver plans from subordinate units are evaluated to determine the need to change the brigade R&S plan. [AN].
 - 2) The brigade S2 and S2 section update the MCOO, SITEMP, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - a) Enemy countermobility capabilities and dispositions are annotated (e.g., location of positions, obstacles, contaminated areas, reserves). [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - b) New information is integrated into the enemy situation template, MCOO, event template, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
- b. The brigade S3 and S3 section evaluate and update staff products: [AN].
 - 1) The brigade S3 and S3 section evaluate mobility data and intelligence information. [AN].
 - a) Subordinate units' OPORDs are evaluated to ensure synchronization with the brigade breach or crossing plan. [AN].
 - b) The Bn TF and engineer battalion commanders' recommended changes and requests for additional resources to the mobility plan are evaluated. [AN].
 - c) Results of the brigade rehearsals are evaluated for synchronization of all BOS. [AN].
 - d) Mobility information from the brigade S2 and brigade elements is used to verify, analyze, and identify necessary changes in the mobility plan: [AN].
 - (1) Routes. [AN].

² The brigade commander and the staff maintain personal "running estimates" of the situation. Each estimate is continuously updated and assessed. As new information is received, its impact on the plan or current mission is determined. This assessment of the situation results in the updating of C2 products. If the assessed changes are of a great enough magnitude, then the brigade commander and staff will initiate the decision-making process to change the plan.

- (2) Assault positions. [AN].
- (3) SBF positions. [AN].
- (4) Crossing/breaching sites. [AN].
- (5) Staging areas. [AN].
- (6) The brigade task-organization. [AN].
- (7) The brigade scheme of maneuver. [AN].
- (8) Bn TF missions. [AN].
- (9) Engineer battalion missions. [AN].
- (10) Control measures. [AN].
- e) Unit status reports are evaluated to: [AN].
 - (1) Determine if adequate mobility systems are available to accomplish the mobility plan. [AN].
 - (2) Ensure that required preparation tasks are completed and the brigade timelines are met. [AN].
- f) The SPOTREPs are evaluated to confirm SITEMP and other intelligence products. [AN].
- g) The updated SITEMP is evaluated to identify necessary changes to the mobility plan. [AN].
- h) The updated engineer estimate is evaluated to identify necessary changes to the mobility plan. [AN].
- i) Recommended changes to the FS plan are evaluated to ensure that the required indirect fires are available to support the mobility plan. [AN].
- j) Recommended changes to the smoke plan are evaluated to ensure that required smoke assets are available to support the mobility plan. [AN].
- k) Updates to the logistics plan and the brigade supply status are evaluated to ensure that the required logistical support is available to support the mobility plan. [AN].
- 2) The brigade S3 and S3 section update the brigade plan, operations estimate, and other C2 products using newly evaluated information. [AN].
 - a) Operations estimate. [AN].
 - b) DST. [AN].
 - c) Execution matrix. [AN].

- d) Plans. [AN].
- e) Overlays. [AN].
- f) Unit and equipment status boards. [AN].
- g) Decision graphics (e.g., combined combat effectiveness and Bn TF composition graphics). [FM 101-5-1, p. 3-4].
- c. The brigade FSO and FSE evaluate and update staff products: [AN].
 - 1) The brigade FSO and FSE evaluate FS information that supports overcoming obstacles. [AN].
 - a) The Bn TF FS plans are compared and deconflicted with the brigade FS plan for a brigade breach or river crossing. [AN].
 - b) New enemy information from the brigade S2 and DIVARTY sources is evaluated. [AN].
 - c) The amount of FS resources available (both lethal and non-lethal) to support a breach or river crossing is evaluated. [AN].
 - d) Shortcomings are identified in the ability of artillery to deliver indirect fires, including SCATMINE and obscuration fires. [AN].
 - e) The need to recommend brigade DST changes to the brigade S3 is evaluated. [AN].
 - f) The FS asset positioning and displacement plans are evaluated to ensure that the required FS is provided for a brigade breach and/or river crossing. [AN].
 - g) The results of the brigade rehearsals are evaluated to ensure that the brigade FS plan supports the brigade maneuver plan as intended. [AN].
 - 2) The brigade FSO and FSE update and integrate FS information that supports overcoming obstacles into the: [AN].
 - a) FS estimate. [AN].
 - b) FS plan. [AN].
 - c) FS overlay. [AN].
 - d) FS execution matrix. [AN].
- d. The engineer battalion S3 and S3 section evaluate and update staff products: [AN].
 - 1) The engineer battalion S3 and S3 section evaluate information for overcoming obstacles. [AN].
 - a) Progress on engineer mobility tasks and unit preparation for the brigade's mission are compared to timelines and required results and shortcomings are identified. [AN].

b) Reports on engineer unit matériel readiness are evaluated to determine if engineer units can complete their missions in support of the breach or crossing. [AN].

c) Engineer company OPORDs are evaluated to determine if the orders support the brigade's mission to breach or cross an obstacle. [AN].

d) Obstacle and enemy information from the brigade and engineer battalion S2s are analyzed for their effects on engineer missions and the brigade's ability to breach or cross an obstacle. [AN].

e) Ability of artillery to deliver SCATMINE and obscuration fires is evaluated (with the brigade FSO) and shortcomings are identified. [AN].

f) Results of the brigade rehearsals are evaluated to ensure that the brigade mobility plan supports the brigade maneuver plan as intended. [AN].

2) The engineer battalion S3 and S3 section update engineer priorities, schedules for engineer effort, and the engineer estimate to reflect the current situation. [AN].

e. The brigade CHEMA and NBC section evaluate staff products: [AN].

1) The brigade CHEMA and NBC section evaluate information for executing smoke missions during brigade mobility operations. [AN].

a) Supply and matériel readiness of the smoke unit are evaluated for providing smoke and shortcomings are identified and changes to the mission determined. [AN].

b) Weather forecasts are evaluated to determine changes required in the number and positioning of smoke generating equipment, munitions (e.g., smoke pots), and fires. [AN].

c) Changes in the FS capability to fire smoke are evaluated to determine needed changes in the number and positioning of smoke-generating equipment and munitions. [AN].

d) Changes to the projected locations of smoke generators are assessed to ensure that terrain requirements are deconflicted. [AN].

e) Results of the brigade rehearsals are evaluated to ensure that the brigade smoke plan supports the brigade mobility plan as intended. [AN].

2) The brigade CHEMA and NBC section integrate new information into the NBC plan. [AN].

f. The brigade S4 and S4 section evaluate and update staff products: [AN].

1) The brigade S4 and S4 section evaluate information for providing logistical support. [AN].

a) The CSS assets are evaluated to determine if they are positioned to support the operation for the maximum time without displacement. [ARTEP 71-3-MTP, Task: 71-3-4001/5].

b) Recovery and repair of mobility assets are evaluated to determine if they can be returned to duty to support the brigade mission. [AN].

c) Filling of brigade requests for Class V for engineers and maneuver units is evaluated to determine the probability of their arrival in time for the mission. [AN].

d) Results of the brigade rehearsals are evaluated to ensure that the brigade CSS plan supports the brigade mobility plan as intended. [AN].

2) The brigade S4 and S4 section integrate new CSS information into the CSS plan. [AN].

16. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

a. The brigade XO coordinates the actions of the brigade staff preparing and updating mobility plans. [ARTEP 71-3-MTP, Task: 71-3-0001/6].

b. The brigade S2 and S2 section disseminate information for overcoming obstacles: [AN].

1) Updated R&S plan, PIR, SITEMP, event template, and MCOO are posted in the brigade CPs and passed to subordinate battalion S2s. [AN].

2) Intelligence information gathered by brigade reconnaissance elements is disseminated. [AN].

a) The brigade S3 is provided with information on brigade routes, staging areas, assault positions, SBF positions, best site for the breaching/crossing, and enemy positions. [AN].

b) The ABE is provided with engineer technical data (e.g., river bank information, water depth, water speed), obstacle information (e.g., location, composition, construction), terrain information, and the results of the route reconnaissance (if performed). [AN].

c) The brigade FSO is provided with information on enemy positions, assembly areas, avenues of approach, high payoff targets. [AN].

d) The division G2 is provided with requested mobility PIR and IR. [AN].

c. The brigade S3 disseminates information and coordinates actions for synchronizing the mobility plan: [AN].

1) The brigade S3 recommends changes to the brigade scheme of maneuver and/or task-organization to overcome obstacles to the brigade commander. [AN].

2) The brigade S3 coordinates changes in the mobility plan with: [AN].

a) The brigade FSO for the delivery of fires. [AN].

b) The brigade CHEMO for smoke missions support. [AN].

c) The engineer battalion commander or ABE for engineer support. [AN].

d) The Bn TF S3s for the scheme of maneuver. [AN].

3) The brigade S3 ensures that coordination of all BOS for mobility missions is accomplished within the brigade staff and between the brigade staff and Bn TF staffs. [AN].

4) The brigade S3 disseminates the updated operations estimate, DST, execution matrix, overlays, and OPOD/FRAGO as required to the brigade staff and subordinate battalions. [AN].

d. The brigade FSO and FSE disseminate information and coordinate actions for overcoming obstacles: [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].

1) The brigade FSO and FSE coordinate with the brigade S3 for the delivery of indirect fires to support mobility operations. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].

2) The brigade FSO and FSE coordinate changes with the brigade CHEMA for smoke missions supporting mobility operations. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].

3) The brigade FSO and FSE distribute changes to the FS plan, FS overlay, and FS execution matrix to the brigade staff and subordinate units. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].

e. The ABE and ABE section disseminate information and coordinate actions for overcoming obstacles: [AN].

1) The ABE and ABE section coordinate with the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

a) The ABE and ABE section provide terrain information from the updated engineer estimate, Terra Base, and EBA to the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

b) The ABE and ABE section pass completed minefield reports to the brigade S2 for inclusion in the MCOO. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

2) The ABE and ABE section pass engineer technical data from the brigade S2 to the engineer battalion S2. [AN].

3) The ABE and ABE section pass changes in the engineer battalion's mobility missions to the engineer battalion S3. [AN].

4) The ABE and ABE section ensure the submission of SCATMINE reports, records, and warnings to the brigade S3 and DIVEN. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

5) The ABE and ABE section forward reports of enemy minefield locations to the brigade S3 and S2. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

6) The ABE and ABE section report to the DIVEN enemy and brigade obstacle/breach locations that impact on friendly maneuver. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

7) The ABE and ABE section coordinate between the brigade staff and supporting engineer units (e.g., corps' bridging company) to ensure that they have all the matériel, assets, and information needed for their mission. [FM 71-123, p. 6-26].

8) The ABE and ABE section conduct coordination for the breaching of a friendly obstacle system (e.g., during a passage of line). [FM 71-3, p. 6-15].

a) The ABE and ABE section gather information from the stationary force engineer concerning: [FM 71-3, p. 6-15].

- (1) Intelligence on local enemy engineer activities. [FM 71-3, p. 6-15].
- (2) Location and status of friendly and enemy obstacles. [FM 71-3, p. 6-15].
- (3) Location of bypasses around or lanes through obstacle systems. [FM 71-3, p. 6-15].

b) The ABE and ABE section coordinate the opening and closing of lanes for the passage of the brigade. [FM 71-3, p. 6-15].

- (1) Times. [FM 71-3, p. 6-15].
- (2) Location. [FM 71-3, p. 6-15].
- (3) Signals. [FM 71-3, p. 6-15].
- (4) Guides. [FM 71-3, p. 6-15].

c) The ABE and ABE section confirm the location of obstacles and marked lanes or bypasses through physical inspection. [FM 71-3, p. 6-15].

9) The ABE and ABE section disseminate information gathered from visit(s) with the stationary force to the brigade S3 and engineer battalion S3. [AN].

f. The engineer battalion commander coordinates mobility actions. [AN].

1) The engineer battalion commander coordinates with the brigade S3 on changes to mobility tasks and missions for the engineer companies. [AN].

2) The engineer battalion commander makes recommendations to the brigade commander on task-organization refinements and the requesting of additional engineer resources. [AN].

3) The engineer battalion commander coordinates with corps engineer assets supporting the brigade. [AN].

4) The engineer battalion commander coordinates with the engineer brigade to ensure that road building material and equipment are prepositioned near river crossing sites to maintain roads. [FM 71-123, p. 6-39].

g. The brigade CHEMA and NBC section disseminate information and coordinate actions for overcoming obstacles: [ARTEP 3-117-40-MTP, Task: 3-4-0005/1/2].

1) The brigade CHEMA and NBC section coordinate with the brigade S3 for changes to smoke missions and locations of decontamination sites. [AN].

2) The brigade CHEMO and NBC section coordinate with the brigade FSO for smoke mission changes supporting mobility operations. [AN].

3) The brigade CHEMO and NBC section pass information on changes to the smoke unit position or status to the brigade staff. [AN].

h. The brigade S4 disseminates information and coordinates CSS actions for overcoming obstacles: [AN].

1) The brigade S4 passes changes for the delivery of Class IV and Class V to the engineer battalion and Bn TF S4s. [AN].

2) The brigade S4 submits additional supply requests for overcoming obstacles to the division G4. [AN].

3) The brigade S4 coordinates with the units tasked to conduct breaching or river crossing operations to select locations for recovery vehicles and emergency engineer supplies near the obstacle or crossing site. [FM 71-123, p. 6-37]

4) The brigade S4 coordinates with the brigade S3 to ensure that movement of supplies necessary for overcoming obstacles is integrated into the brigade movement plan. [FM 71-123, p. 6-26].

5) The brigade S4 coordinates with the FSB S3 to ensure that Class IV and Class V materials are requisitioned and transported to designated work sites. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

17. The brigade conducts rehearsals to overcome obstacles.

a. The brigade rehearses the negotiation of a friendly obstacle system. [FM 71-3, p. 6-17].

1) The brigade engineer rehearses link up with the stationary force engineer at the contact point and the final coordination for a passage of lines. [FM 71-3, p. 6-17].

2) The Bn TF engineers and other Bn TF units rehearse proofing lanes cleared through friendly obstacle systems. [FM 71-123, p. 6-8].

b. Brigade elements rehearse encountering previously undetected obstacles (e.g., a destroyed bridge, SCATMINES). [AN].

1) The Bn TFs rehearse in-stride breaches. [AN].

2) A Bn TF which is unable to breach in-stride or bypass an obstacle rehearses battle drills, and plans for a Bn TF deliberate breach. (See Bn TF CCF 21.) [AN].

3) The brigade rehearses battle drills for a brigade deliberate breach. [AN].

c. The brigade commander directs and leads the brigade rehearsals for a brigade deliberate breach of an obstacle system. [AN].

1) Reconnaissance elements reconnoiter and report information on the breach sites and bypasses. [FM 71-123, p. 6-37].

2) The brigade S2 collects simulated reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

- a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].
- b) Location of enemy reserve. [FM 71-123, p. 6-37].
- c) Location of enemy FS assets. [FM 71-123, p. 6-37].
- d) New obstacles. [FM 71-123, p. 6-37].
 - (1) Location. [AN].
 - (2) Type. [AN].
 - (3) Orientation. [AN].

3) The brigade commander and brigade S3 rehearse synchronizing the brigade's breaching operations: [AN].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan. [FM 71-3, p. 4-41].

(1) The brigade commander and brigade S3 issue FRAGOs as necessary. [FM 71-3, p. 4-41].

(2) The brigade commander and brigade S3 note changes for updating the brigade OPORD and C2 products. [CALL Newsletter, No. 91-1, p. 1].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces with the: [AN].

- (1) DST. [AN].
- (2) Synchronization matrix. [AN].
- (3) Execution matrix. [AN].
- (4) FS execution matrix. [AN].

4) The brigade FSO rehearses directing and coordinating fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The brigade support force commander rehearses maneuvering the support force into its overwatch positions. [FM 71-3, p. 4-41].

a) The brigade support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) The brigade support force FSO calls for and adjusts smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(2) The brigade support force FSO maintains obscurity. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(3) The brigade support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

b) The brigade support force commander directs the brigade support force in suppressing the enemy with direct fires. [AN].

c) The smoke unit moves to a position and begins smoke operations in support of the breach. [AN].

6) The brigade breach force commander rehearses maneuvering the brigade breaching force into its assault positions. [FM 71-3, p. 4-41].

7) The brigade assault force commander rehearses maneuvering the brigade assault force into its assault positions. [FM 71-3, p. 4-41].

a) The brigade assault force remains in a covered and concealed position. [FM 71-3, p. 4-41].

b) The brigade assault force occupies an SBF position and its commander directs fires to suppress or destroy enemy forces. [FM 71-3, p. 4-41].

8) The brigade breach force commander rehearses maneuvering the breaching element to the breach locations. [FM 71-3, p. 4-41].

a) The brigade breach force commander directs the engineers and Bn TF mobility assets in the reduction of the obstacles and the creation of lanes. [FM 71-3, p. 4-41].

b) The brigade breach force commander directs the positioning of smoke pots to obscure the breach. [FM 71-3, p. 4-41].

c) The brigade breach force penetrates the obstacle system and establishes a lodgement area on the far side by establishing a hasty defense. [FM 90-13-1, pp. 2-3 to 2-4].

d) The brigade breach force marks lanes through the obstacle system. [FM 90-13-1, pp. 2-3 to 2-4].

e) The brigade breach force proofs the lanes. [AN].

9) The brigade assault force rehearses the movement of the assault force through the lanes. [AN].

fires. [AN].

- a) The brigade assault force commander directs the support force to shift direct

- b) The brigade assault force receives priority of indirect fires. [AN].

- c) The brigade assault force commander directs the brigade assault force FSO to lift and shift indirect fires. [AN].

- d) The brigade assault force rehearses the final assault to seize the objective, continue the attack (finds and attacks the enemy reserve), or establish a hasty defense. [AN].

- d. The brigade commander directs and leads the brigade rehearsals for a deliberate river crossing. [AN].

- 1) Reconnaissance elements reconnoiter the brigade crossing sites. [FM 71-123, p. 6-37].

- 2) The brigade S2 collects simulated reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

- a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

- b) Location of enemy reserve. [FM 71-123, p. 6-37].

- c) Location of enemy FS assets. [FM 71-123, p. 6-37].

- d) New in-the-water, near-shore, and far-shore obstacles. [FM 71-123, p. 6-37].

- (1) Location. [AN].

- (2) Type. [AN].

- (3) Orientation. [AN].

- 3) The brigade commander and brigade S3 rehearse synchronizing the brigade's river crossing operations. [FM 71-3, p. 4-41].

- a) The brigade commander and brigade S3 determine required adjustments to the brigade river crossing plan. [FM 71-3, p. 4-41].

- (1) The brigade commander and brigade S3 issue FRAGOs as necessary. [FM 71-3, p. 4-41].

- (2) The brigade commander and brigade S3 note changes for updating the brigade OPOD and C2 products. [LL-CALL Newsletter, No. 91-1, p. 1].

- b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

- c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver, fires, and crossing of the river using the: [AN].

- (1) DST. [AN].
- (2) Synchronization matrix. [AN].
- (3) Execution matrix. [AN].
- (4) FS execution matrix. [AN].

4) The brigade FSO rehearses directing and coordinating fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [AN].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [AN].

5) The brigade assault force commander rehearses movement to the assault position and preparation of vehicles for the river crossing. [FM 71-3, p. 6-45].

a) Vehicle crews practice preparing vehicles for swimming or fording the river. [AN].

b) Vehicles are separated into and positioned as raft loads. [AN].

6) The support force commander rehearses maneuvering the support force into its overwatch positions. [FM 71-3, p. 6-45].

a) The support force FSO rehearses indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) The support force FSO calls for smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(2) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

b) The smoke unit rehearses occupying positions and smoke operations in support of the river crossing. [AN].

7) The brigade crossing area commander rehearses establishing his HQ, normally the brigade main CP. [AN].

8) The brigade assault force rehearses crossing the river and seizing its initial objectives. [FM 71-3, p. 6-45].

a) Engineers prepare the entry points for swimming combat vehicles or rafts for tanks. [FM 71-3, p. 6-45].

- b) Corps bridging engineers prepare rafts for the assault river crossing. [FM 71-3, p. 6-45].
- c) Engineers reduce obstacles on the near side of the crossing site. [FM 71-3, p. 6-45].
- d) The brigade assault force assaults across the river, Bn TFs: [FM 71-3, p. 6-44].
 - (1) Seize bridges, cross in-stride. [FM 71-3, p. 6-44].
 - (2) Use rafts. [FM 71-3, p. 6-44].
 - (3) Use fords. [FM 71-3, p. 6-44].
 - (4) Conduct amphibious assaults. [FM 71-3, p. 6-44].
- e) The brigade assault force seizes the brigade's initial objectives on the far side of the river and secures the bridgehead. [FM 71-3, p. 6-45].
- f) Engineers reduce obstacles on the far side of the river. [AN].
- g) Engineers prepare exit points for bridges or rafts. [AN].
- h) The brigade assault force FSO rehearses indirect fires, including: [FM 71-123, p. 6-33; ARTEP 71-3-MTP, Task: 71-3-9003/1].
 - (1) Smoke to obscure the building of bridges, rafts, and fords and the crossing of brigade follow-and-support forces. [FM 71-123, p. 6-33].
 - (2) Fires (including SCATMINES) that interdict enemy routes to the crossing sites. [FM 71-123, p. 6-33].
 - (3) Fires that support the maneuver of the brigade assault force to the release point/line of the crossing area. [FM 71-123, p. 6-33].
- 9) The brigade rehearses the activation of the brigade crossing area HQ and actions of brigade support forces. [FM 71-3, p. 6-45].
 - a) Engineers rehearse the construction of bridges, rafts, or fords. [FM 71-3, p. 6-45].
 - b) Follow-and-support units rehearse movement to and crossing the river. [FM 71-3, p. 6-45].
 - c) The brigade crossing area commander and staff rehearse the following: [FM 90-13, p. 4-9].
 - (1) Command and control of the crossing area. [AN].
 - (a) Adjust crossing schedule as the tactical situation changes. [AN].
 - (b) Maintain situational awareness of the location of units in the crossing area. [AN].

- (c) Establish and maintain communications in the crossing area. [AN].
 - (2) Controlling brigade units in the crossing area. [FM 90-13, p. 4-9].
 - (3) Controlling the brigade support force after the completion of the assault. [FM 90-13, p. 4-9].
 - (4) Sequencing the brigade support force across the river. [FM 90-13, p. 4-9].
 - (5) Returning tactical control of units (to the brigade commander) after they arrive in the attack positions on the far-shore. [FM 90-13, p. 4-9].
- d) The MPs rehearse the control of traffic in the brigade crossing area. [FM 71-3, p. 6-43].
 - (1) The MPs control traffic in the brigade crossing area. [FM 71-3, p. 6-43].
 - (2) The MPs direct traffic from assembly areas to staging areas. [FM 71-3, p. 6-43].
 - (3) The MPs sequence brigade elements out of staging areas to the crossing site and across the river. [FM 71-3, p. 6-43].
- 10) Engineer elements rehearse maintaining the road network leading to and away from the crossing sites. [FM 71-123, p. 6-34].
- 11) The brigade crossing area commander rehearses the hand-over of control of the crossing area to division or corps follow-on units when the brigade has crossed the river. [AN].
- e. The brigade commander and brigade staff conduct checks of Bn TFs river crossing safety preparations. [AN].
 - 1) Troops are prepared and briefed for the crossing. [AN].
 - a) Personal items of equipment and actions. [AN].
 - b) Configuration of vehicles. [AN].
 - 2) Vehicles are prepared for assault swimming or fording. [AN].
 - 3) Vehicle drivers are briefed on crossing using rafts, assault bridges, swimming, or fording. [AN].
 - 4) Safety equipment is available. [AN].

18. The brigade commander and brigade staff change the operation or plan.³

a. The brigade commander assesses his estimate of the situation to ascertain the validity of the current plan and determines: [AN].

- 1) Whether the plan can be accomplished without any changes. [AN].
- 2) Whether the plan's scheme of maneuver or mobility plan requires changes. [AN].
- 3) Which decision-making process to use in changing the current plan. [AN].

a) The deliberate decision-making process (DDMP). (See tasks 2 to 12 in Planning .) [AN].

b) The time-constrained decision-making process. [AN].

b. The brigade commander gives guidance to the brigade staff for revision of the mobility plan after developing a new mission concept. [AN].

- 1) The brigade commander's restated mission, if changed. [FM 5-71-3, p. 2-19].
- 2) The brigade commander's intent and end state, if changed. [FM 5-71-3, p. 2-19].
- 3) The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].

a) Engineer missions. [AN].

b) The task-organization of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].

(1) Engineer battalion command and support relationships: [AN].

- (a) Engineer assets that will organize with the brigade's Bn TFs. [AN].
- (b) Engineer assets that will remain under brigade control. [AN].
- (c) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].
- (d) Engineer and other mobility assets that will be under the engineer battalion's control. [AN].

³The brigade conducts both in-stride and deliberate breaches. The brigade conducts in-stride breaches through the task-organization of its Bn TFs. Brigade deliberate breaches are conducted against complex obstacle systems defended by a battalion-sized element. A change in the mission that would require the brigade to conduct a deliberate breach, or conduct a river crossing as part of a division, would normally require the brigade planning sequence to return to the planning portion of this TA.

- (2) Allocation of Bn TF organic mobility assets. [AN].
- c) Priorities of engineer support. [FM 5-71-3, p. 2-19].
- d) The scheme of maneuver in overcoming obstacles: [AN].
 - (1) The method the commander desires to use to breach obstacles or cross a river (e.g., in-stride or deliberate). [AN].
 - (2) The location(s) the commander wants considered to breach obstacles or cross a river. [AN].
- 4) Logistics priorities. [FM 5-100, p. 39].
 - a) Supply and transport of engineer supplies. [FM 5-100, p. 39].
 - b) Maintenance and repair for the engineer battalion and other brigade pieces of mobility equipment. [FM 5-100, p. 39].
- 5) The IRs. [FM 5-71-3, p. 2-19].
- 6) The brigade CCIR. [FM 5-71-3, p. 2-19].
- 7) The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].
- 8) The ABE sends the brigade commander's guidance to the engineer battalion S3. [AN].
- c. The ABE analyzes the new mission concept to determine mobility tasks and requirements. [AN].
 - 1) The ABE determines the following information from the brigade commander's guidance: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].
 - a) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - b) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - c) Engineer task-organization. [FM 5-71-3, p. 2-11].
 - d) Limitations: [FM 5-71-3, p. 2-11].
 - (1) Restrictions. [FM 5-71-3, p. 2-11].
 - (2) Constraints. [FM 5-71-3, p. 2-11].
 - e) Identification of essential engineer tasks in the division order. [FM 5-71-3, p. 2-11].

2) The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].

3) The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].

d. The brigade staff develops new mobility COAs. [AN]

1) The brigade S3 and brigade staff develop COAs for maneuver. [AN].

a) The brigade S3 and brigade staff determine required changes to breaching, gap crossing, or river crossing operations. [FM 5-71-3, p. 3-4].

b) The brigade S3 and brigade staff allocate forces to accomplish the mission (brigade task-organization). [FM 5-71-3, p. 3-4].

2) The ABE develops COAs for engineer support of brigade COAs. [FM 5-71-3, p. 2-11].

3) The brigade FSO develops FS COAs that support mobility operations. [FM 71-3, p. 6-41; AN].

4) The brigade CHEMO develops COAs that support mobility operations. [AN].

5) The brigade S4 and brigade S1 develop CSS COAs that support mobility operations. [FM 5-71-3, p. 3-4].

e. The brigade staff analyzes COAs (war game). [AN].

1) The brigade S3 and brigade staff prepare the scheme of maneuver. [AN].

2) The brigade S3 and brigade staff organize the brigade for mobility operations. [AN].

3) The ABE war games each engineer COA against each anticipated enemy COA. [FM 5-100, p. 106].

4) The ABE determines if the scheme of engineer operations supports the COA and the maneuver plan. [FM 5-71-3, p. 2-12].

5) The brigade FSO war games FS COAs for support of mobility operations. [AN].

6) The brigade S4 war games CSS COAs for support of mobility operations. [FM 5-71-3, p. 3-4].

7) The brigade S2 war games enemy-countermobility COAs. [FM 5-71-3, p. 3-4].

f. The brigade staff compares COAs. [AN].

1) For each COA, the ABE is prepared to inform the brigade commander on the following: [AN].

a) The recommended brigade concept/scheme to support the COA. [AN].

- b) Which COA is not supportable by engineers. [AN].
 - c) Where risk must be accepted. [FM 5-100 (Final Draft), p. B-10].
 - d) What additional assets are needed to avoid risk. [FM 5-100 (Final Draft), p. B-10].
 - e) Where those assets may be obtained. [FM 5-100 (Final Draft), p. B-10].
- 2) The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].
 - g. The brigade commander announces his decision. [AN].
 - 1) The brigade commander approves the mobility plan. [AN].
 - 2) The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include: [AN].
 - a) The TO for the brigade maneuver units and engineers. [AN].
 - b) Requests to division for additional engineer and mobility assets. [AN].
 - c) Additions or changes to the plan's branches and sequels for brigade breaches and river crossings. [AN].
 - d) The brigade's FS plan in support of mobility operations. [AN].
 - e) The brigade's use of obscurants in support of mobility operations. [AN].
 - f) The brigade's logistics plan in support of mobility operations. [AN].
 - 3) The ABE informs the engineer battalion S3 of the brigade commander's decision. [AN].
 - h. The brigade staff prepares and publishes a FRAGO. [AN].
 - 1) The brigade S3 plans for actions at an obstacle (obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].
 - a) The Bn TFs are task-organized with engineers to overcome obstacles in-stride. [FM 71-123, p. 3-34].
 - b) Missions are assigned to subordinate elements for a brigade deliberate breach or river crossing (as part of a division river crossing). [AN].
 - 2) The brigade FSO plans FS for mobility operations. [AN].
 - 3) The brigade CHEMO plans for NBC operations in support of a river crossing or a brigade breach. [AN].
 - 4) The ABE prepares the engineer support subparagraph. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

- 5) The ABE updates the engineer annex. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

EXECUTION

19. The brigade staff collects information for overcoming obstacles.

a. The brigade S2 section collects mobility intelligence data from reports from reconnaissance elements. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

- 1) The INTSUM from the division G2. [AN].
- 2) Information from division and adjacent units' staffs which answer previously submitted information queries. [AN].
- 3) The SPOTREPs from subordinate reconnaissance elements performing brigade R&S operations. [AN].
- 4) The SPOTREPs from Bn TF S2s. [AN].
- 5) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [AN].

b. The brigade S3 and S3 section monitor and collect information for mobility operations. [AN].

1) The brigade S3 and S3 section monitor the progress of the Bn TFs in overcoming obstacles and the accomplishment of their missions. [ARTEP 71-3-MTP, Task: 71-3-3003/1].

2) The brigade S3 and S3 section monitor the progress of engineering work for river crossing operations. [AN].

a) Preparation of near- and far-shore banks. [AN].

b) Reduction of obstacles on the near- and far-shore. [AN].

c) Preparation of fords, rafts, and bridges. [AN].

3) The brigade S3 and S3 section monitor reports of SCATMINES used by the enemy. [AN].

4) The brigade S3 and S3 section acquire subordinate units' FRAGOs. [AN].

5) The brigade S3 and S3 section collect reports from the Bn TFs and CS units. [AN].

a) Strength reports (e.g., number of mobility assets ready). [AN].

(1) Maneuver unit mechanical breaching equipment status. [AN].

(2) Engineer equipment status. [AN].

- (3) Engineer bridging unit status. [AN].
- (4) The FA status. [AN].
- (5) Smoke unit status. [AN].
- b) The SPOTREPs on enemy obstacles found by Bn TF reconnaissance elements. [AN].
- 6) The brigade S3 and S3 section collect requests for resources from subordinate units. [AN].
- 7) The brigade S3 and S3 section collect recommendations from subordinate commanders for modifications to their assigned missions. [AN].
- 8) The brigade S3 and S3 section collect the updated SITEMP, event template, and MCOO from the brigade S2. [AN].
- 9) The brigade S3 and S3 section collect information on brigade routes, staging areas, assault positions, SBF positions, and selected sites for breaching or crossing an obstacle. [AN].
- 10) The brigade S3 and S3 section collect recommendations and changes to the FS plan from the brigade FSO. [AN].
- 11) The brigade S3 and S3 section monitor indirect fire missions. [AN].
- 12) The brigade S3 and S3 section monitor ammunition levels for all forces (e.g., support force, assault force). [AN].
- 13) The brigade S3 and S3 section acquire information from the ABE: [AN].
 - a) Updated EBA. [AN].
 - b) Recommendations and changes to the engineer battalion's mobility missions. [AN].
 - c) Reports of enemy minefield locations. [AN].
 - d) Information from the final coordination with the stationary force engineer for a passage of lines. [AN].
- 14) The brigade S3 and S3 section collect information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [AN].
- c. The brigade FSO collects information and monitors calls-for-fire by Bn TF FSEs in support of mobility operations. [ARTEP 71-3-MTP, Task: 71-3-9002].
 - 1) Intelligence information, acquired from the DIVARTY S3 and the DS artillery battalion staff, on the locations of enemy units and FS assets that could influence the breach or crossing. [AN].
 - 2) Artillery status from the DS FA battalion. [ARTEP 71-3-MTP, Task: 71-3-9002/1].

- a) Location and status of firing batteries. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
- b) Ammunition types and quantities. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
- 3) Execution of Bn TF FS plans. [ARTEP 71-3-MTP, Task: 71-3-9002/4].
- 4) Execution of SCATMINE missions. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
- 5) Status reports on positioning of observers. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
- 6) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-9002/3].
- d. The brigade CHEMA collects information and monitors the activities of the smoke unit during mobility operations: [AN].
 - 1) The brigade CHEMA collects weather reports from the brigade S2. [AN].
 - 2) The brigade CHEMA collects adjustments to the positioning of the smoke generators from the smoke unit. [AN].
 - 3) The brigade CHEMA monitors the supporting smoke unit's status: [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - a) The status of personnel, equipment, and POL. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - b) Location of the smoke unit. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
- e. The ABE acquires information on engineer operations: [AN].
 - 1) The ABE monitors engineer operations in the brigade AO. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - a) The availability of engineer equipment. [AN].
 - b) The execution of the brigade obstacle plan that supports the brigade mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - c) The construction of combat routes and trails. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - d) The clearing and repairing of routes in support of tactical and logistical operations. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 2) The ABE collects conventional minefield reports. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 3) The ABE collects SCATMINE reports, records, and warnings. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

4) The ABE collects reports from reconnaissance and engineer units on routes, bypassed obstacles, and minefields. [FM 5-100, p. 44].

5) The ABE maintains continuous communications with the engineer unit commanders supporting the brigade. [FM 5-100, p. 25].

a) The ABE collects reports from divisional and corps engineer units within the brigade AO and keeps the brigade S3 and engineer battalion commander informed on current engineer operations. [FM 5-100, p. 30].

b) The ABE collects reports of the engineer units' status and keeps the brigade S3 informed. [FM 5-100, p. 34].

f. The brigade S4 monitors logistics during mobility operations: [AN].

1) The delivery of Class V demolitions for overcoming obstacles. [AN].

2) The recovery and servicing of maneuver and engineer mobility equipment. [AN].

3) Requests for necessary Class IV and Class V for the engineer units from the engineer battalion S4 and Bn TF S4s. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].

20. The brigade staff evaluates and updates staff products.⁴

a. The brigade S2 and S2 section evaluate and update staff products: [AN].

1) The brigade S2 and S2 section evaluate information and intelligence. [AN].

a) Enemy capabilities and dispositions are verified (e.g., the location of positions, obstacles, contaminated areas, etc.). [AN].

b) Enemy strengths and weakness are determined to confirm the best breach or crossing site. [AN].

c) Probable enemy COAs countering breaches or river crossings are confirmed. [AN].

d) The FRAGOs to maneuver plans from subordinate units are evaluated to determine the need to change the brigade R&S plan. [AN].

2) The brigade S2 and S2 section update information and intelligence. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

a) Enemy countermobility capabilities and dispositions are annotated on overlays (e.g., location of positions, obstacles, contaminated areas, reserves). [ARTEP 71-3-MTP, Task: 71-3-2006/3].

b) New information is integrated into the enemy situation template, MCOO, event template, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

⁴See Footnote 4.

b. The brigade S3 and S3 section evaluate and update staff products: [AN].

1) The brigade S3 and S3 section evaluate mobility data and intelligence information. [AN].

a) The combat strength of the brigade, availability and capability of mobility assets, and the current situation are evaluated to determine the practicability of the brigade's plan. [AN].

b) Changes to subordinate units' plans are evaluated to ensure synchronization with the brigade breach or crossing plan. [AN].

c) The Bn TF and engineer battalion commanders' recommended changes and requests for additional resources to the mobility plan are evaluated. [AN].

d) Positions and activities of the Bn TFs are assessed against the brigade DST and synchronization matrix. [AN].

e) Mobility information from the brigade S2 and brigade elements is used to verify, analyze, and identify necessary changes in the mobility plan: [AN].

(1) Routes. [AN].

(2) Assault positions. [AN].

(3) SBF positions. [AN].

(4) Crossing/breaching sites. [AN].

(5) Staging areas. [AN].

(6) The brigade task-organization. [AN].

(7) The brigade scheme of maneuver. [AN].

(8) Bn TF missions. [AN].

f) Unit status reports are evaluated to determine if adequate mobility systems are available to accomplish the mobility plan. [AN].

g) The SPOTREPs are evaluated to confirm the SITEMP and other intelligence products. [AN].

h) The updated SITEMP is evaluated to identify necessary changes to the mobility plan. [AN].

i) The execution and results of the mobility plan are evaluated against the brigade DST and synchronization matrix to identify necessary changes. [AN].

j) The execution and results of the FS plan are monitored and evaluated to ensure that fires are providing the desired results. [AN].

k) The execution and results of the smoke plan are evaluated to ensure that required obscuration is being provided by the smoke unit and other assets. [AN].

1) The execution of the logistics plan and the brigade supply status are evaluated to ensure that the required logistical support is available to support the mobility plan. [AN].

2) The brigade S3 and S3 section update the brigade plan, operations estimate, and other C2 products using newly evaluated information. [AN].

a) Operations estimate. [AN].

b) The DST. [AN].

c) Execution matrix. [AN].

d) Plans. [AN].

e) Overlays. [AN].

f) Unit and equipment status boards. [AN].

g) Decision graphics (e.g., combined combat effectiveness and Bn TF composition graphics). [FM 101-5-1, p. 3-4].

c. The brigade FSO and FSE evaluate and update staff products: [AN].

1) The brigade FSO and FSE evaluate FS information that supports overcoming obstacles. [AN].

a) The execution of Bn TF FS plans are compared and deconflicted with the brigade FS plan for a brigade breach or river crossing. [AN].

b) The effects of FS are evaluated against what was desired. [AN].

c) New enemy information from the brigade S2 and DIVARTY sources is evaluated. [AN].

d) The amount of FS resources available to support a breach or river crossing is evaluated. [AN].

e) Shortcomings in the ability of artillery to deliver indirect fires, including SCATMINE and obscuration fires, are identified. [AN].

f) The FS asset positioning and displacement plans are evaluated to ensure that the required FS is provided for a brigade breach and/or river crossing. [AN].

g) Weather conditions are evaluated for their effects on FS. [AN].

2) The brigade FSO and FSE update and integrate FS information into the: [AN].

a) FS estimate. [AN].

b) FS plan. [AN].

c) FS overlay. [AN].

- d) FS execution matrix. [AN].
- d. The brigade CHEMA and NBC section evaluate staff products: [AN].
 - 1) The brigade CHEMA and NBC section evaluate information on smoke missions during brigade mobility operations. [AN].
 - a) The supply and matériel readiness of the smoke unit are evaluated for the current mission, shortcomings are identified, and changes to the mission are determined. [AN].
 - b) Weather conditions and the forecast are evaluated to determine changes required in the number and positioning of smoke-generating equipment, munitions (e.g., smoke pots), and fires. [AN].
 - c) Changes in the FS capability to fire smoke are evaluated to determine needed changes in the number and positioning of smoke-generating equipment and munitions. [AN].
 - d) Changes to the locations of smoke generators are assessed to ensure that terrain requirements are deconflicted. [AN].
 - 2) The brigade CHEMA and NBC section integrate new information into the NBC plan. [AN].
- e. The ABE and ABE section evaluate and update staff products: [AN].
 - 1) The ABE and ABE section evaluate information for overcoming obstacles. [AN].
 - a) Progress on engineer mobility tasks is compared to timelines and required results and shortcomings are identified. [AN].
 - b) Locations and activities of engineer units are assessed against where they should be located according to the plan. [AN].
 - c) Reports on engineer units' material readiness are evaluated to determine if engineer units can complete their missions in support of the breach or river crossing. [AN].
 - d) Obstacle and enemy information from the brigade and engineer battalion S2s are analyzed for their effects on engineer missions and the brigade's ability to breach or cross an obstacle. [AN].
 - e) The ability of artillery to deliver SCATMINE and obscuration fires is evaluated (with the brigade FSO), and shortcomings are identified. [AN].
 - 2) The ABE and ABE section update engineer information. [AN].
 - a) The ABE and ABE section update priorities, schedules for the engineer effort, and the engineer estimate to reflect the current situation. [AN].
 - b) The ABE and ABE section update the EBA and engineer estimate. [AN].
 - (1) The ABE and ABE section update the factors of OCOKA. [AN].

- (2) The ABE and ABE section update the estimate of enemy countermobility capability. [AN].
 - (3) The ABE and ABE section assist the brigade S2 and engineer battalion S2 in updating the MCOO. [AN].
 - (4) The ABE and ABE section update Terra Base digital information. [AN].
 - (5) The ABE and ABE section update the engineer logistical status. [AN].
- f. The brigade S4 and S4 section evaluate and update staff products: [AN].
- 1) The brigade S4 and S4 section evaluate information for providing logistical support. [AN].
 - a) The brigade S4 and S4 section determine if CSS assets are properly positioned to support the mission. [ARTEP 71-3-MTP, Task: 71-3-4001/5].
 - b) The brigade S4 and S4 section evaluate recovered mobility assets to determine if they can be repaired and returned to duty to support the brigade mission. [AN].
 - c) The brigade S4 and S4 section evaluate the filling of critical brigade requests for Class V demolitions. [AN].
 - (1) The probability of the requested demolitions arriving in time for the missions. [AN].
 - (2) Alternate sources for obtaining necessary supplies. [AN].
 - 2) The brigade S4 and S4 section integrate new CSS information into the CSS plan. [AN].
- 21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.**
- a. The brigade XO coordinates the actions of the brigade staff in supporting the execution and updating of plans. [ARTEP 71-3-MTP, Task: 71-3-0001/6].
 - b. The brigade S2 section disseminates mobility intelligence data gathered from reports by reconnaissance elements and Bn TFs. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - 1) The brigade S2 ensures that the updated R&S plan, PIR, SITEMP, event template, and MCOO are posted in the brigade CPs and passed to subordinate battalion S2s. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - 2) The brigade S2 ensures that the brigade S3, brigade FSE, and other brigade staff sections receive copies of pertinent combat information reports. [ARTEP 71-3-MTP, Task: 71-3-2006/6].
 - 3) The brigade S2 keeps the brigade commander and brigade S3 informed of his analysis of enemy actions and probable future actions based on the gathered information (e.g.,

enemy reserve commitment, chemical weapon use on the brigade in constricted terrain, and SCATMINE use). [AN].

c. The brigade S3 section disseminates mobility information and coordinates the brigade's actions. [AN].

1) The brigade S3 section recommends changes to the brigade scheme of maneuver and/or task-organization to overcome obstacles to the brigade commander. [AN].

2) The brigade S3 section sends requests for additional mobility resources to the division G3. [AN].

3) The brigade S3 section issues FRAGOs. [AN].

4) The brigade S3 section disseminates the updated operations estimate, DST, execution matrix, overlays, and OPORD/FRAGO as required to the brigade staff and subordinate battalions. [AN].

5) The brigade S3 section coordinates changes in the mobility plan with: [AN].

a) The brigade FSO for the delivery of fires. [AN].

b) The brigade CHEMA for smoke missions support. [AN].

c) The engineer battalion commander or ABE for engineer support. [AN].

d) The Bn TF S3s for the scheme of maneuver. [AN].

6) The brigade S3 section ensures that coordination of all BOS for mobility missions is accomplished within the brigade staff and between the brigade staff and the Bn TF staffs. [AN].

d. The brigade FSO coordinates and synchronizes the brigade's indirect fires and disseminates information during mobility operations: [AN].

1) The brigade FSO disseminates the updated FS plan and overlay as required to the brigade staff and subordinate battalions. [AN].

2) The brigade FSO synchronizes brigade FS with that of Bn TF FSEs fires. [ARTEP 71-3-MTP, Task: 71-3-9002/4].

3) The brigade FSO coordinates with the ABE for the integration of artillery-delivered SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-9002/3].

4) The brigade FSO coordinates with the brigade S3 for the delivery of fires to support mobility operations. [ARTEP 71-3-MTP, Task: 71-3-9002/3].

5) The brigade FSO coordinates with the brigade CHEMA for changes in the delivery of artillery and mortar fired smoke. [AN].

e. The brigade CHEMA coordinates smoke operations and passes information supporting mobility operations. [AN].

1) The brigade CHEMA passes information on changes to the smoke unit. [AN].

- a) Weather forecast updates. [AN].
- b) Changes to the smoke mission (e.g., location of the smoke objective, smoke density, duration of the smoke, changes to artillery and mortar delivered smoke). [AN].
- c) Information on resupply. [AN].
- 2) The brigade CHEMA coordinates with the brigade S3 for changes to smoke missions and locations of smoke generators. [AN].
- 3) The brigade CHEMA coordinates with the brigade FSO for smoke mission changes. [AN].
- 4) The brigade CHEMA coordinates with the ABE and the brigade breach force CHEMA for the use of smoke munitions in support of a breach. [AN].
- f. The ABE coordinates engineer mobility operations and passes information from the brigade main CP. [AN].
 - 1) The ABE passes engineer taskings to the engineer battalion on behalf of the brigade commander. [FM 5-100, p. 30].
 - 2) The ABE passes mobility information. [AN].
 - 3) The ABE reports the obstacle-plan status (e.g., obstacles completed, work in progress, completion times) to the brigade commander and brigade S3. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 4) The ABE forwards reports on enemy minefield locations to the brigade S3 and S2. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 5) The ABE reports to the division the locations of obstacles/breaches, both enemy and friendly, that impact on friendly maneuver. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 6) The ABE passes reports from reconnaissance and engineer units on routes, MSRs, bypassed obstacles, and minefields to the brigade S3 section. [AN].
 - 7) The ABE keeps the brigade S3 and brigade commander informed on the progress made by engineers in overcoming obstacles. [FM 5-100, p. 34].
 - 8) The ABE coordinates with the brigade S4 to ensure that Class IV and Class V obstacle and demolition materials are positioned forward. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
 - 9) The ABE checks with attached engineer units (e.g., corps' bridging company) to ensure that they have all the matériel and assets needed for their mission. [FM 71-123, p. 6-26].
- g. The brigade S4 coordinates logistical support and updates logistical support for mobility operations. [AN].
 - 1) The brigade S4 requests transport of engineer supplies (Class IV and Class V) to engineer units. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].

2) The brigade S4 coordinates with the S4s of units conducting a breach or crossing to ensure that recovery vehicles and emergency engineer supplies are near the obstacle or crossing site. [FM 71-123, p. 6-37].

3) The brigade S4 coordinates with the ABE to identify sustainment measures and to ensure that sustainment measures for the engineer battalion are executed. [ARTEP 71-3-MTP, Task: 71-3-8005/2; FM 5-71-100, p. 3-21].

22. The brigade conducts mobility operations.

a. The brigade negotiates a friendly obstacle system. [FM 71-3, p. 6-17].

1) The brigade engineer links up with the stationary force engineer at the contact point and performs final coordination of the passage of lines. [FM 71-3, p. 6-17].

a) Enemy engineer intelligence, received from the stationary force engineer, is sent to the brigade S2. [FM 71-3, p. 6-15].

b) Locations and status of enemy and friendly obstacles are sent to the brigade S2 and S3. [FM 71-3, p. 6-15].

c) Locations of lanes and bypasses are sent to the brigade S3. [FM 71-3, p. 6-15].

2) The brigade engineer confirms the locations of obstacles and marked lanes or bypasses along the designated passage lanes. [FM 71-3, p. 6-17].

3) The brigade engineer ensures that obstacles to be removed by the stationary force are reduced. [FM 71-123, p. 6-4].

4) The brigade engineer monitors the reduction of obstacles that block the brigade's axes or routes and ensures that they are not breached prematurely. [FM 71-123, p. 6-19].

5) The Bn TF engineers and other Bn TF units with mobility equipment (e.g., plows and rollers) proof lanes cleared through friendly obstacle systems. [FM 71-123, p. 6-8].

6) The brigade S3 monitors the execution of demolitions on other obstacles as part of the brigade's role in the division deception plan. [FM 71-123, p. 6-8].

b. Brigade elements encounter previously undetected obstacles (e.g., a destroyed bridge, SCATMINES). [AN].

1) The Bn TF commanders report obstacles to the brigade commander as their Bn TFs breach in-stride or bypass obstacles. [AN].

2) A Bn TF which is unable to breach in-stride or bypass an obstacle takes a tactical pause to plan, prepare, and execute a Bn TF deliberate breach. (See Bn TF CCF 21.) [AN].

3) The brigade's Bn TFs which are unable to breach an obstacle in-stride or deliberately take a tactical pause to plan, prepare, and execute a brigade deliberate breach. [AN].

c. The brigade commander directs and leads the brigade in the execution of a brigade deliberate breach of an obstacle system. [AN].

1) The Bn TF reconnaissance elements continue to reconnoiter and report information on the breach sites and bypasses. [FM 71-123, p. 6-37].

2) The brigade S2 collects reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [AN].

c) Location of enemy FS assets. [AN].

d) New obstacles. [AN].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 synchronize the brigade breaching operations: [AN].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan and issue FRAGOs as necessary. [FM 71-3, p. 4-41].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces using the: [AN].

(1) The DST. [AN].

(2) Synchronization matrix. [AN].

(3) Execution matrix. [AN].

(4) The FS execution matrix. [AN].

4) The brigade FSO directs and coordinates fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The support force commander maneuvers the support force into its overwatch positions. [FM 71-3, p. 4-41].

a) The support force commander reports the situation to the brigade commander. [FM 71-3, p. 4-41].

b) The support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) The support force FSO calls for and adjusts smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(2) The support force FSO maintains obscuration. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(3) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

c) The support force commander directs the support force in suppressing the enemy with direct fires. [AN].

d) The smoke unit occupies positions and begins smoke operations in support of the breach. [AN].

6) The brigade breach force commander maneuvers the brigade breaching force into its assault positions and reports the situation to the brigade commander. [FM 71-3, p. 4-41].

7) The brigade assault force commander maneuvers the brigade assault force into its assault positions and reports the situation to the brigade commander. [FM 71-3, p. 4-41].

a) The brigade assault force remains in a covered and concealed position. [FM 71-3, p. 4-41].

b) The brigade assault force occupies an SBF position and its commander directs fires to suppress or destroy enemy forces. [FM 71-3, p. 4-41].

8) The brigade breach force commander maneuvers the breaching element to the breach locations. [FM 71-3, p. 4-41].

a) The brigade breach force commander directs the engineers and Bn TF mobility assets in the reduction of the obstacles and the creation of lanes. [FM 71-3, p. 4-41].

b) The brigade breach force commander directs the positioning of smoke pots to obscure the breach. [FM 71-3, p. 4-41].

c) The brigade breach force penetrates the obstacle system and establishes a lodgement area on the far side by establishing a hasty defense. [FM 90-13-1, pp. 2-3 to 2-4].

d) The brigade breach force marks lanes through the obstacle system. [FM 90-13-1, pp. 2-3 to 2-4].

e) The brigade breach force proofs the lanes. [AN].

f) The brigade breach force commander reports to the brigade commander that the breach is complete. [AN].

9) The brigade commander orders the brigade assault force commander to move the brigade assault force through the lanes. [AN].

a) The brigade assault force commander directs the support force to shift direct fires. [AN].

b) The brigade assault force commander directs the brigade assault force FSO to lift and shift indirect fires. [AN].

c) The brigade assault force seizes the objective, continues the attack (finds and attacks the enemy reserve), or establishes a hasty defense. [AN].

10) The engineer battalion commander monitors the reduction of the obstacle, ensuring that: [FM 90-13-1, p. 4-4].

a) The brigade breach force engineers remain with the obstacle and continue to improve the lanes through the obstacle system. [FM 90-13-1, p. 4-4].

b) The brigade breach force engineers ensure that lanes are marked. [FM 90-13-1, p. 4-4].

c) The enemy's attempts to re-establish the obstacle with SCATMINES are overcome. [AN].

11) The engineer battalion commander coordinates with follow-on unit engineers to hand over the obstacle. [FM 90-13-1, p. 4-4].

12) The brigade S3 coordinates the brigade's remaining elements passing through the breach and continuing the brigade's mission. [AN].

d. The brigade commander directs and leads the execution of an assault as part of a divisional deliberate river crossing. [AN].

1) Reconnaissance elements continue to reconnoiter and report information on the brigade crossing sites to the brigade S3 and S2. [FM 71-123, p. 6-37].

2) The brigade S2 acquires reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [AN].

c) Location of enemy FS assets. [AN].

d) New in-the-water, near-shore, and far-shore obstacles. [AN].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 direct brigade units and synchronize river crossing operations. [FM 71-3, p. 4-41].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan and issue FRAGOs as necessary. [FM 71-3, p. 4-41].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces with: [AN].

(1) DST. [AN].

(2) Synchronization matrix. [AN].

(3) Execution matrix. [AN].

(4) FS execution matrix. [AN].

4) The brigade FSO directs and coordinates fires requested by brigade elements on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The crossing force commander maneuvers the crossing force into its assault positions. [FM 71-3, p. 6-45].

a) The crossing force commander reports the situation to the brigade commander. [FM 71-3, p. 6-45].

b) Vehicle crews prepare vehicles for swimming or fording the river. [AN].

c) Vehicles are separated into and positioned as raft loads. [AN].

d) Safety checks are made. Vehicle operators, crews, and passengers are given safety briefings. [AN].

6) The support force commander maneuvers the support force into its overwatch positions and reports the situation to the brigade commander. [FM 71-3, p. 6-45].

a) The support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

- (1) The support force FSO calls for and adjusts the smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].
- (2) The support force FSO maintains obscurity. [ARTEP 71-3-MTP, Task: 71-3-9003/1].
- (3) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].
- b) The support force commander directs the support force in suppressing the enemy with direct fires. [AN].
- c) The smoke unit occupies positions and begins smoke operations in support of the river crossing. [AN].
- 7) The brigade crossing area commander establishes his HQ, normally the brigade main CP, where he can control the crossing area. [AN].
- 8) The brigade commander orders the brigade assault force to cross the river and seize its initial objectives. [FM 71-3, p. 6-45].
 - a) Engineers prepare the entry points for swimming combat vehicles or rafts for tanks. [FM 71-3, p. 6-45].
 - b) Corps bridging engineers prepare rafts for an assault river crossing. [FM 71-3, p. 6-45].
 - c) Engineers reduce obstacles on the near side of the crossing site. [FM 71-3, p. 6-45].
 - d) The brigade assault force assaults across the river; Bn TFs: [FM 71-3, p. 6-44].
 - (1) Seize bridges, cross in-stride. [AN].
 - (2) Use rafts. [AN].
 - (3) Use fords. [AN].
 - (4) Conduct amphibious assaults. [AN].
 - e) The brigade assault force seizes the brigade's initial objectives on the far side of the river. [FM 71-3, p. 6-45].
 - f) Engineers reduce obstacles on the far side of the river. [AN].
 - g) Engineers prepare exit points for bridges or rafts. [AN].
 - h) The brigade assault force commander reports to the brigade and brigade crossing area commanders when the far-side objectives are secure. [FM 71-3, p. 6-45].
 - i) The brigade assault force commander continues the attack in the area between the exit and release points/lines for the crossing area. [FM 71-123, p. 6-30].

j) The brigade assault force FSO directs indirect fires, including: [FM 71-123, p. 6-33; ARTEP 71-3-MTP, Task: 71-3-9003/1].

- (1) Smoke to obscure the building of bridges, rafts, and fords and the crossing of follow-and-support forces. [AN].
- (2) Fires (including SCATMINES) that interdict enemy routes to the crossing sites. [AN].
- (3) Fires that support the maneuver of the brigade assault force to the release point/line of the crossing area. [AN].

9) On order of the brigade commander, the brigade crossing area commander assumes control of the crossing area. [FM 71-3, p. 6-45].

a) The brigade crossing area commander orders the engineers to begin the construction of bridges, rafts, or fords. [FM 71-3, p. 6-45].

b) Upon completion of the bridge, rafts, or fords, the brigade crossing area commander begins the movement of the brigade across the river. The initial units crossing the river include: [FM 71-3, p. 6-45].

- (1) Combat elements to reinforce the brigade assault force. [AN].
- (2) The CSS elements to resupply, recover vehicles, and evacuate casualties. [AN].

c) The brigade crossing area commander and staff do the following: [FM 90-13, p. 4-9].

- (1) Control brigade units in the crossing area. [FM 90-13, p. 4-9].
- (2) Control the brigade support force after the completion of the assault. [FM 90-13, p. 4-9].
- (3) Sequence the brigade support force across the river. [FM 90-13, p. 4-9].
- (4) Return tactical control of units (to the brigade commander) after they arrive in the attack positions on the far-shore. [FM 90-13, p. 4-9].

d) Under the control of the brigade crossing area commander, MPs: [FM 71-3, p. 6-43].

- (1) Control traffic in the crossing area. [AN].
- (2) Direct traffic from assembly areas to staging areas. [AN].
- (3) Sequence brigade elements out of staging areas to the crossing site and across the river. [AN].

10) The engineer battalion commander directs engineer elements in maintaining the road network leading to and away from the crossing sites. [FM 71-123, p. 6-34].

11) The brigade crossing area commander hands over control of the brigade crossing area to division or corps follow-on-units when the brigade has crossed the river. [AN].

23. The brigade commander and brigade staff change the operation or plan.

a. The brigade commander assesses his estimate of the situation to ascertain the validity of the current plan and determines: [AN].

- 1) Whether the plan can be accomplished without any changes. [AN].
- 2) Whether the plan's scheme of maneuver or mobility plan requires changes. [AN].
- 3) Which decision-making process to use in changing the current plan. [AN].
 - a) The DDMP. (See tasks 2 to 12 in Planning.) [AN].
 - b) The time-constrained decision-making process. [AN].

b. The brigade commander gives guidance to the brigade staff for the revision of the mobility plan after developing a new mission concept. This information includes: [AN].

- 1) The brigade commander's restated mission, if changed. [FM 5-71-3, p. 2-19].
- 2) The brigade commander's intent and end state, if changed. [FM 5-71-3, p. 2-19].
- 3) The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].
 - a) Engineer missions. [AN].
 - b) The TO of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].
 - (1) Engineer battalion command and support relationships: [AN].
 - (a) Engineer assets that will organize with the brigade's Bn TFs. [AN].
 - (b) Engineer assets that will remain under brigade control. [AN].
 - (c) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].
 - (d) Engineer and other mobility assets that will be under the engineer battalion's control. [AN].
 - (2) Allocation of Bn TF organic mobility assets. [AN].
 - c) Priorities of engineer support. [FM 5-71-3, p. 2-19].
 - d) The scheme of maneuver for overcoming obstacles: [AN].

- (1) The method the commander desires to use to breach obstacles or cross a river (e.g., in-stride or deliberate). [AN].
 - (2) The location(s) the commander wants considered to breach obstacles or cross a river. [AN].
- 4) Logistics priorities. [FM 5-100, p. 39].
 - a) The supply and transport of engineer supplies. [FM 5-100, p. 39].
 - b) Maintenance and repair for the engineer battalion and other brigade pieces of mobility equipment. [FM 5-100, p. 39].
- 5) The IRs. [FM 5-71-3, p. 2-19].
- 6) The brigade CCIR. [FM 5-71-3, p. 2-19].
- 7) The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].
- 8) The ABE sends the brigade commander's guidance to the engineer battalion S3. [AN].
- c. The ABE analyzes the new mission concept to determine mobility tasks and requirements. [AN].
 - 1) The ABE determines the following information from brigade commander's guidance: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].
 - a) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - b) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - c) Engineer task-organization. [FM 5-71-3, p. 2-11].
 - d) Limitations: [FM 5-71-3, p. 2-11].
 - (1) Restrictions. [FM 5-71-3, p. 2-11].
 - (2) Constraints. [FM 5-71-3, p. 2-11].
 - e) Identification of essential engineer tasks in the division order. [FM 5-71-3, p. 2-11].
 - 2) The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].
 - 3) The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].
- d. The brigade staff develops new mobility COAs. [AN].

- 1) The brigade S3 and brigade staff develop COAs for maneuver. [AN].
 - a) The brigade S3 and brigade staff determine required changes to breaching, gap crossing, or river crossing operations. [FM 5-71-3, p. 3-4].
 - b) The brigade S3 and brigade staff allocate forces to accomplish the mission (brigade task-organization). [FM 5-71-3, p. 3-4].
- 2) The ABE develops COAs for engineer support of brigade COAs. [FM 5-71-3, p. 2-11].
- 3) The brigade FSO develops FS COAs that support mobility operations. [FM 71-3, p. 6-41; AN].
- 4) The brigade CHEMA develops COAs that support mobility operations [AN].
- 5) The brigade S4 and brigade S1 develop CSS COAs that support mobility operations [FM 5-71-3, p. 3-4].
- e. The brigade staff analyzes COAs (war game). [AN].
 - 1) The brigade S3 and brigade staff prepare a scheme of maneuver. [AN].
 - 2) The brigade S3 and brigade staff organize the brigade for mobility operations. [AN].
 - 3) The ABE war games each engineer COA against each anticipated enemy COA. [FM 5-100, p. 106].
 - 4) The ABE determines if the scheme of engineer operations supports the COA and the maneuver plan. [FM 5-71-3, p. 2-12].
 - 5) The brigade FSO war games FS COAs for the support of mobility operations. [AN].
 - 6) The brigade S4 war games CSS COAs for the support of mobility operations. [FM 5-71-3, p. 3-4].
 - 7) The brigade S2 war games enemy countermobility COAs. [FM 5-71-3, p. 3-4].
- f. The brigade staff compares COAs. [AN].
 - 1) For each COA the ABE is prepared to inform the brigade commander of the following: [AN].
 - a) The recommended brigade concept/scheme to support the COA. [AN].
 - b) Which COA is not supportable by engineers. [AN].
 - c) Where risk must be accepted. [FM 5-100 (Final Draft), p. B-10].
 - d) What additional assets are needed to avoid risk. [FM 5-100 (Final Draft), p. B-10].

- e) Where those assets may be obtained. [FM 5-100 (Final Draft), p. B-10].
- 2) The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].
 - g. The brigade commander announces his decision. [AN].
 - 1) The brigade commander approves the mobility plan. [AN].
 - 2) The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include: [AN].
 - a) The task-organization for the brigade maneuver units and engineers. [AN].
 - b) Requests to division for additional engineer and mobility assets. [AN].
 - c) Additions or changes to the plan's branches and sequels for brigade breaches and river crossings. [AN].
 - d) The brigade's FS plan in support of mobility operations. [AN].
 - e) The brigade's use of obscurants in support of mobility operations. [AN].
 - f) The brigade's logistics plan in support of mobility operations. [AN].
 - 3) The ABE informs the engineer battalion S3 of the brigade commander's decision. [AN].
 - h. The brigade staff prepares and publishes a FRAGO. [AN].
 - 1) The brigade S3 plans for actions at an obstacle (obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].
 - a) The Bn TFs are task-organized with engineers to overcome obstacles in-stride. [FM 71-123, p. 3-34].
 - b) Missions are assigned to subordinate elements for a brigade deliberate breach or river crossing (as part of a division river crossing). [AN].
 - 2) The brigade FSO plans FS for mobility operations. [AN].
 - 3) The brigade CHEMA plans for NBC operations in support of a river crossing or a brigade breach. [AN].
 - 4) The ABE prepares the engineer support subparagraph. [ARTEP 71-3-MTP, Task: 71-3-3002/1].
 - 5) The ABE updates the engineer annex. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

24. The brigade reorganizes on the objective.

- a. The Bn TFs consolidate on their objectives. (See Bn TF CCF 20.) [ARTEP 71-2-MTP, Task: 7-1-3022].

- 1) The Bn TFs report the status of mobility assets to the brigade S3. [AN].
 - 2) The Bn TFs reorganize company/team organic mobility equipment. [AN].
 - 3) Engineer companies reorganize internally and request replenishment from the engineer battalion. [AN].
- b. The engineer battalion supports the brigade consolidation with engineer support. [AN].
- 1) Assets are employed to reduce enemy obstacles in the brigade AO. [AN].
 - 2) Assets are used to improve roads and trails for the movement of units and logistics. [AN].
 - a) Craters are filled. [AN].
 - b) Rubble is cleared. [AN].
 - c) Vegetation is cleared. [AN].
- c. The brigade reorganizes degraded units and engineer capabilities (including rollers and plows). [AN].
- 1) Brigade XO oversees reorganization/refit of units designated by the brigade commander. [ARTEP 71-3-MTP, Task: 71-3-0002/3].
 - 2) The brigade XO ensures that the reorganized/refitted units are combat ready upon completion of their reorganization/refit. [ARTEP 71-3-MTP, Task: 71-3-0002/4].
 - 3) The brigade XO oversees weapons system replacement operations. [ARTEP 71-3-MTP, Task: 71-3-0002/5].

LESSONS LEARNED INTEGRATED INTO TASK LIST

This subcomponent identifies the lessons learned extracted from the U.S. Army CALL publications relevant to performing this CCF. The lessons learned are organized and listed by the appropriate task in the CCF task list. Where appropriate to address the absence of a task in an ARTEP-MTP, the lessons learned have been structured as tasks and are included in the detailed task list as sub-tasks. The purpose of the lessons learned subcomponent is to provide the user with the most recent TTPs associated with the performance of the tasks in this CCF.

PLANNING TASKS

1. **The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.**
2. **The brigade receives an order initiating a mission from its higher headquarters.**
3. **The brigade commander and staff conduct mission analysis.**
4. **The brigade issues a warning order.**

LL- Concurrent with the warning order, push standard logistics packages to subordinates. Don't wait for the OPORD or subordinate requests. S4s determine unique logistics requirements based on standard missions (such as offense or defense) in garrison. Then they organize a standard means to transport and distribute this material. During operations they:

- Conform higher push packs on receipt of higher warning order.
- Allocate these push packs to subordinates in accordance with (IAW) standing operating procedures (SOP).

[CALL Newsletter No.88-3: Heavy Forces — Fall 1988]

5. **The brigade commander issues his planning guidance to the brigade staff.**
6. **The brigade staff prepares staff estimates.**

LL- During offensive operations, finding and neutralizing obstacles is a critical task which should be performed in advance of the attack. This requires detailed reconnaissance, distinctive breach marking schemes, and continuous security at the breach until the main body arrives. These locations must also be concealed from the enemy for as long as possible. Guides, colored smoke, and aircraft marking panels are three techniques used to orient forces. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]

LL- Include minefields as NAI: Assume all avenues of approach are mined until recon determines otherwise. [CALL Newsletter 88-2: Minefield Breaching — May 1988]

LL- Provide redundant communications and ensure dissemination of information. [CALL Newsletter 88-2: Minefield Breaching — May 1988]

7. The brigade staff develops courses of action.

- LL- Plan and Issue a Clear/Complete Order: Employ backwards planning. The objective of an attack is to destroy the enemy or seize terrain, not to breach an obstacle. First define actions on the objective: assault, consolidation, and reorganization. From this movement to the objective, to include breaching, flows logically. Wargame courses of action and employ briefbacks to ensure clarity and understanding of staff and subordinates. [CALL Newsletter 88-2: Minefield Breaching — May 1988]
 - LL- Field artillery family of scatterable mines (FASCAM) must be carefully planned by the engineer, FSO, and S3. Like any obstacle, it is best used at a choke point covered by effective indirect and anti-tank (AT) fire. The FASCAM can be very effective for lane and gap closure and for blocking enemy breaches. Preplanning FASCAM is a must. [NTC Commander's Memorandum — November 1985]
 - LL- Push logistics forward: Breaching operations require massive material consumption. Maintaining a 1000m smoke screen for 30 minutes requires 500 white phosphorus mortar rounds. The mortar platoon basic load is 528 rounds of all types. To prepare for material consumption: identify required breaching material; determine how to transport/distribute it; push forward this material from higher echelons; request throughput of additional required material to lower echelons. [CALL Newsletter 88-2: Minefield Breaching — May 1988]
 - LL- Isolate the part of the enemy's defense system to be attacked from the supporting fires of other parts of the defense so that the task force's efforts can be concentrated against it.
 - Use terrain to avoid enemy fires and to exploit gaps in his defenses.
 - Use smoke to cover movement.
 - Use artillery and mortars to suppress adjacent enemy positions (to include using smoke).
 - Attack adjacent positions by direct fire or by maneuver.
- [CALL Newsletter 88-2: Minefield Breaching — May 1988]
- LL- Identify the enemy weakness and then mass on it: Verify the situational template before breaching or bypassing. The recon prior to the attack or actions on contact must achieve this. [CALL Newsletter No. 88-3: Heavy Forces — Fall 1988]
 - LL- Isolate the enemy weakness with terrain, obscurants, or fire. [CALL Newsletter No. 88-3: Heavy Forces — Fall 1988]
 - LL- As with any obstacle system, the Engineer is the staff proponent for planning the employment of FASCAM. The FSO and fire support coordinator (FSCOORD) must coordinate with the engineer in planning and coordinating FASCAM. The FSO can then work out inconsistencies between the planning and logistics estimates and can provide the commander with planning considerations, employment constraints, and safety zones for FASCAM minefields. [CALL Newsletter No. 90-5: Fire Support — May 1990]

8. The brigade staff and brigade commander analyze courses of action (war game).

LL- Frequent changes in task organization should be avoided. The teamwork advantage is often far more important than a slightly more desirable mix of forces. Also, the timing of a change requires careful analysis. The significant advantage of a daylight link-up and the time required to receive the OPOD and to coordinate SOPs and LOGPACs must be considered. [NTC Commander's Memorandum — November 1985]

LL- Push Engineers Forward: Push engineers rapidly forward to mass and synchronize at the decisive point. Normally the most crucial engineer tasks are forward where minefields are under fire or where nuisance minefields disrupt main body movement. Changing a task organization is complex and time consuming, so make the change early to allow time for synchronization. Rapidly push engineers forward to the:

- Advance guard (during movement to facilitate rapidly breaching/bypassing and reporting obstacles not under fire).
- Breach force(s) (during the breach to assist in the actual obstacle breaching).
- Recon forces (as practicable for detecting, reconning and bypassing obstacles, and for detailed obstacle reconnaissance if required).

[CALL Newsletter 88-2: Minefield Breaching — May 1988]

LL- Organize to breach: Designate assault, breach, and support forces. Specify responsibilities for breach site selection, control of all fires, lifting and shifting of fires, which support force suppresses what position, who adjusts and executes fire support to include smoke, and who confirms/requests counterfire. [CALL Newsletter 88-2: Minefield Breaching — May 1988]

LL- Mass engineer headquarters forward: Habitually employ an engineer company headquarters with each committed battalion task force and involve them in the planning process. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]

LL- Fix Responsibility for engineer effort with maneuver commanders: Responsibility for success or failure ultimately resides with the maneuver commander. Both engineer and maneuver elements execute engineer tasks. Regardless of who does the work, the task supports a maneuver commander's plan. The simplest method to coordinate intent, logistics support, work party security, siting, etc., is to give the mission to a maneuver company commander and assign engineer support as required. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]

LL- Task forces do not adequately plan for breaches. Task forces don't adequately recon, secure, suppress, and obscure prior to breaching. Breaching is an integral combined arms part of all attacks. As such, poorly synchronized attacks cause breaches to fail, while poorly synchronized breaches cause attacks to fail. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]

9. The brigade staff compares courses of action.

10. The brigade commander announces his decision.

11. **The brigade staff prepares the operations order or fragmentary order.**
 - LL- Employ engineer execution matrices: Engineer execution matrices and clear detailed commander's guidance, continually monitored by the tactical operations center (TOC)/command group assures that responsibility stays fixed and receives command emphasis. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]
12. **The brigade issues the operations order/fragmentary order to subordinate elements.**

PREPARATION TASKS

13. **The brigade conducts reconnaissance.**
 - LL- Recon is the basis for successful attacks. Initiate recon rapidly; recon takes time and minefield recon takes much more time. [CALL Newsletter 88-2: Minefield Breaching — May 1988]
 - LL- Use all available recon assets: Don't "Over Mission" recon elements. If more than one engineer platoon supports the task force, consider augmenting all platoon sized recon assets with engineers. If only one engineer platoon supports the task force, maintain engineers available to recon detected obstacles as part of the attack. [CALL Newsletter 88-2: Minefield Breaching — May 1988]
 - LL- Recon minefields before deciding to bypass, or conduct a hasty/deliberate breach. Most threat minefields are surface laid 200–300 meter wide strips. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]
 - LL- The TFs often do not identify obstacles prior to the whole TF's arrival. Often, inaccurate reconnaissance results in the lead elements piling into the obstacle with no attempt to bypass. [CALL CTCs Bulletin, "Lessons and Information," No. 93-4, Jul 93]
14. **The brigade staff collects information for overcoming obstacles.**
15. **The brigade staff evaluates and updates staff products.**
16. **The brigade staff disseminates information and coordinates actions for overcoming obstacles.**
17. **The brigade conducts rehearsals to overcome obstacles.**
 - LL- Drill breach procedures: Develop combined arms teamwork. Only well-drilled combined arms teams successfully breach. Each part of the team must understand and perform their role to avoid catastrophic loss of the breach force. [CALL Newsletter 88-2: Minefield Breaching — May 1988]
 - LL- Prepare to Execute: Rehearse countermine drills. Engineers prepare and inspect equipment and rehearse detection, recon, reduction, proofing, and marking minefields down to the individual task level. Task force conducts a combined arms rehearsal that usually consists of a walk through of the concept of operation with commanders and possibly platoon leaders and fire support officers representing their units. [CALL Newsletter 88-2: Minefield Breaching — May 1988]

- LL- Ensure unity of effort: Train breaching as an integral part of all attacks. Push engineers forward. Train all soldiers and units to manually breach. Designate and specify the responsibilities for the assault, breach, and support forces. Conduct a combined arms breaching rehearsal. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]
- LL- The combat engineer is not always available to clear mines. Devise a program of drills for extracting troops from mined areas and rehearse them. All soldiers need to know how to identify, mark, and report the presence of minefields. [CALL Special Edition, "Somalia," No. 93-1, Jan 93; pp. 13 - 14]
- LL- Most TFs observed at the Combat Maneuver Training Center (CMTC) understand the fundamentals of breaching, e.g., **Secure, Obscure, Suppress, and Reduce (SOSR)**, but have great trouble with proper execution. Failure to rehearse the TF breach seems to be the cause. In most TFs, companies can execute an in-stride breach, but the TF, as a whole, has not practiced either the in-stride or deliberate breach. Opposing forces (OPFOR) obstacles are normally simple in design and construction, but they effectively stop blue force (BLUFOR) units. Once stopped, our forces usually fall victim to deadly accurate OPFOR direct and indirect fires, resulting in high casualties. [CALL CTCs Bulletin, "Lessons and Information," No. 93-4, Jul 93]

18. The brigade commander and brigade staff change the operation or plan.

EXECUTION TASKS

19. The brigade staff collects information for overcoming obstacles.

20. The brigade staff evaluates and updates staff products.

21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

- LL- Positive action must be taken to disseminate obstacle (friendly and enemy) and NBC contaminated areas to every corner of the organization. Consider establishing a "Commander-in-Chief (CINC)" battlefield clutter responsible for:
 - Maintaining a consolidated chemical, barrier, obstacle overlay with the locations of all battlefield clutter regardless of source.
 - Ensuring that copies of the overlay are disseminated to all staff, subordinate, adjacent, and higher units (maneuver and log) on a regular basis.
 - Ensuring that the overlay is considered during planning and in updating intelligence preparation of the battlefield (IPB) products.

[CALL Newsletter No. 89-4: Corps/Division — November 1989]

22. The brigade conducts mobility operations.

- LL- Well drilled breaching SOPs are the key to mobility. Ideally, the scout platoon (with an engineer noncommissioned officer (NCO) or squad attached) or follow-on infantry identify obstacles before the attack begins. Stealthy breaching at night can then occur. Guides, colored smoke, or VS 17 panels orient the assault force to the

lane(s). Regardless of the method, breaching is so complex that repetitive training is critical. This is a combined maneuver/engineer problem. [CATA Commander's Comments, The CS Team — May 1987]

LL- Upon completion of the recon, the commander decides to:

- Bypass: Most desirable course of action; take care not to bypass into a fire sack or away from the weak point in the defense.
- Hasty Breach: Viable option if task force has sufficient forces to rapidly secure to far side of the obstacle with available fire or dismounted infantry assault.
- Deliberate Breach: Task force masses overwhelming fires, conducts detailed recon, and prepares extensively for the breach.

Breach.

Suppress: Counterfire is critical to manual breaches and must be coordinated with brigade for division and corps fires. Support forces provide direct fires normally under S3 control. Short range air defense (SHORAD) needs to mass Vulcans at breach to protect lane while stingers protect teams. Suppression aimed at:

- The platoon being assaulted.
- Adjacent/supporting platoon strong points.
- The battalion mortar battery.
- Elements of the regimental artillery group.

Obscure: Clever use of weather and terrain is the best obscuration method. Alternatively, employ screening smoke between enemy and friendly forces. Don't employ smoke on or near breach site because it creates C2 problems, silhouettes the assault forces, and identifies the breach site.

- Initiate smoke on enemy with mortars; they are under TF control and use white phosphorus (WP) which builds up smoke rapidly.
- Plan to sustain smoke with other assets such as chemical smoke platoon, field artillery, smoke pots, on-board vehicle smoke, or engine exhaust smoke.
- Smoke platoon effective if wind/weather correct and sufficient time available to build up smoke screen.

Secure: The TF gains possession of far side of crossing site and deploys in a manner which prevents its loss to the enemy.

- Dismounted infantry can assault or infiltrate using approaches not available to vehicles, securing the other side before the breach.
- Support force secures the far side, given overwhelming fire superiority.

- Indirect fire support can neutralize small isolated targets with a massive volume of fire.

Reduce: Create a clear lane through the minefield by sequentially accomplishing the following tasks. Each task requires a platoon due to attrition, additional minefields, and the friction of war (Murphy's Law).

- Recon to determine minefield's forward edge.
- Clear the lane of mines.
- Proof the lane to confirm it is clear of mines.
- Mark entrance, sides, and exit.
- Post guides to control traffic and keep lane open. Have recovery assets nearby.
- Treat lanes like a defile; designate someone to control movement.

Assault: Obstacle reduction involves the minimum effort to get the assault force through the obstacle. Situation dependent, the lead vehicles may be the means to proof the lane.

- Cross/lead with detection element.
- Retain control of the breach site.
- There is no momentum in an assault through a reduced lane.
- Position a single leader to rapidly expedite the combined breach and assault force actions. (e.g., commander with the assault force, retaining S3 with the breach force, command group positioned to overwatch both.)

Clear. Unit guides remain until relieved by follow on engineers or until minefield is cleared of all mines. This is a division/corps responsibility, with engineer arrival ensured by brigade.

LL- Lane Requirements.

As a rule of thumb, the following are recommended:

- One lane per assault company.
- Plan two breach attempts per required lane.
- Plan breaches 200 meters deep.
- Complete breach with two lanes per task force, 300 meters apart.
- Initial lanes 4 meters wide; improve to 8 meters as situation allows.

[CALL Newsletter 88-2: Minefield Breaching — May 1988]

- LL- To reduce the lane sequentially: Recon the minefield's forward edge, clear the lane, proof the lane, mark the entrance/exit/sides, then post guides and recovery assets. [CALL Newsletter No.88-3: Heavy Forces — Fall 1988]
- LL- During offensive operations, finding and neutralizing obstacles is a critical task which should be performed in advance of the attack. This requires detailed reconnaissance, distinctive breach marking schemes, and continuous security at the breach until the main body arrives. These locations must also be concealed from the enemy for as long as possible. Guides, colored smoke, and aircraft marking panels are three techniques used to orient forces. [NTC Commander's Memorandum — November 1985]
- LL- Land mines are a constant threat The mine or suspicious object immediate action drill is to *WARN THOSE IN THE IMMEDIATE VICINITY, DETERMINE LIMITS OF THE MINEFIELD, MARK THE LIMITS OF THE MINEFIELD, REPORT TO HIGHER, and AVOID*. In areas which may be mined, always move with your eyes open and treat with suspicion any object, natural or artificial, which appears out of place in its surrounding. If a soldier is wounded from a mine, use the following casualty immediate action drill. One person clears a route to the casualty. *LOOK, PROBE, DETECT*. Clear the area immediately around the casualty. Administer essential first aid. Drag casualty away from minefield using cleared route. Administer additional first aid. Evacuate the casualty as soon as possible (ASAP).

LESSON(S):

- . Expect constant changes in local techniques.
- . Never disarm a landmine; report its location through your chain of command.
- . Do not move over the most obvious and easiest ground without checking it for mines first.
- . Be careful when tired.
- . Never pull, stack, or cut any wire, taut or slack, without first examining both ends. It is preferable [sic] that you do not touch the wire while examining it.
- . Ensure that the lead vehicle proofs route of march. Use sand bags, flak vests, steel plates or lumber to protect crew and limit the number of personnel in the vehicle.

[CALL Special Edition, "Somalia," No. 93-1, Jan 1993]

- LL- Once the obstacle has been identified and the execution of the breach initiated, units must suppress the far side. Failure results in wholesale destruction of the unit's breaching force. Likewise, smoke is often slow in coming and fails to conceal breaching activities. Generally, the problem results from not adjusting for the time it takes to get rounds on target and how long it takes to build an appropriate screen. The failure to adequately adjust smoke is another TF shortcoming. [CALL CTCs Bulletin, "Lessons and Information," No. 93-4, Jul 1993]

23. **The brigade commander and brigade staff change the operation or plan.**
24. **The brigade reorganizes on the objective.**

GATE TASKS

This subcomponent identifies critical individual or collective tasks upon which the performance of each CCF task identified in the Task List is dependent. In order to ensure efficient and safe training of the major CCF task, the participants should first have achieved a level of mastery in performing these gate tasks.

PLANNING TASKS

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.
2. The brigade receives an order initiating a mission from its higher headquarters.
3. The brigade commander and brigade staff conduct mission analysis.
4. The brigade issues a WARNO.
5. The brigade commander issues his planning guidance to the brigade staff.
6. The brigade staff prepares staff estimates.

INDIVIDUAL/COLLECTIVE GATE TASKS

Engr Bn S3, ABE

[STP 5-21II-MQS, Engineer]

- Prepare Engineer Estimates [O1-2250.20-1001]

Engr Bn S2

[STP 5-21II-MQS, Engineer]

- Provide Input to Intelligence Preparation of the Battlefield [O1-2250.20-1006]
- Establish Intelligence Production Requirements and Essential Elements of Terrain or Engineer Information [O1-2250.20-1004]

Engr Bn Intelligence NCO

[ARTEP 34-245-10-DRILL, Intelligence Section]

- Develop Combined Obstacles Overlay [301-336-1804]
- Develop Avenues of Approach Using Modified Combined Obstacles Overlay [301-336-1805]
- Determine Mobility Corridors Within Identified Avenues of Approach [301-336-1806]

7. The brigade staff develops COAs.

ABE

[STP 5-21II-MQS, Engineer]

- Advise Supported Units on Engineer Capabilities and Employment [01-2250.10-1002]
- Advise the Commander on the Use of Terrain for Combat Operations [01-2250.20-1008]

8. The brigade staff and commander analyze COAs (war game).

9. The brigade staff compares COAs.

10. The brigade commander announces his decision.

11. The brigade staff prepares the OPORD or FRAGO.

ABE

[STP 5-21II-MQS, Engineer]

- Prepare Engineer Annexes [01-2250.20-1002]

Engr Bn S3, ABE

- Plan Engineer Support for River-Crossing Operations [01-2080.20-1001]

12. The brigade commander and brigade staff issue the OPORD/FRAGO to subordinate elements.

13. The brigade conducts reconnaissance.

Bde and Bn/TF reconnaissance elements

[STP 17-12II-MQS, Armor]

- Classify Ford Crossing Sites [01-1980.00-0019]
- Classify Tunnels, Underpasses, and Similar Obstructions [01-1960.21-1002]
- Conduct a Route Reconnaissance at Platoon Level [01-1241.00-0033]

Engr Bn reconnaissance with Bn/TF reconnaissance or independent

[ARTEP 5-145-11-MTP, Engineer Platoon]

- Conduct A Route Reconnaissance [05-4-0401]
- Conduct a River Crossing Site Reconnaissance [05-4-0404]
- Conduct a Target Reconnaissance [05-4-0405]
- Conduct an Engineer Reconnaissance [05-4-0407]
- Conduct Enemy Obstacle Reconnaissance [05-4-0411]

ABE Section

[STP 5-12B24-SM-TG, Engineer Solider]

- Prepare a Route Reconnaissance Overlay [051-196-3009]
- Prepare a Tunnel Reconnaissance Report [051-196-3031]
- Prepare a Reconnaissance Report [051-196-3032]
- Prepare a Bridge Reconnaissance Report [051-196-3033]
- Prepare an Engineer Reconnaissance Report [051-196-3035]
- Evaluate Engineer Intelligence for Dissemination [O1-2250.20-1005]

14. The brigade staff collects information for overcoming obstacles.

15. The brigade staff evaluates and updates staff products.

Engr Bn S3, ABE Section

[STP 5-21II-MQS, Engineer]

- Prepare Engineer Estimates [O1-2250.20-1001]

[STP 5-12B24-SM-TG, Engineer Soldier]

- Determine the Requirements for the Construction of an M4T6 Bridge/raft [051-198-4054]
- Determine Bailey Bridge Requirements [051-197-4028]

Engr Bn S2

[STP 5-21II-MQS, Engineer]

- Provide Input to Intelligence Preparation of the Battlefield [O1-2250.20-1006]
- Establish Intelligence Production Requirements and Essential Elements of Terrain or Engineer Information [O1-2250.20-1004]

16. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

17. The brigade conducts rehearsals to overcome obstacles.

18. The brigade commander and brigade staff change the operation or plan.

ABE

[STP 5-21II-MQS, Engineer]

- Advise Supported Units on Engineer Capabilities and Employment [O1-2250.10-1002]

Gate Tasks for Brigade CCF 21

- Advise the Commander on the Use of Terrain for Combat Operations [O1-2250.20-1008]
- Prepare Engineer Annexes [O1-2250.20-1002]

Engr Bn S3, ABE

[STP 5-21II-MQS, Engineer]

- Plan Engineer Support for River-Crossing Operations [O1-2080.20-1001]

19. The brigade staff collects information for overcoming obstacles.

20. The brigade staff evaluates and updates staff products.

Engr Bn S3, ABE Section

[STP 5-21II-MQS, Engineer]

- Prepare Engineer Estimates [O1-2250.20-1001]

[STP 5-12B24-SM-TG, Engineer Soldier]

- Determine the Requirements for the Construction of an M4T6 Bridge/raft [051-198-4054]
- Determine Bailey Bridge Requirements [051-197-4028]

Engr Bn S2

[STP 5-21II-MQS, Engineer]

- Provide Input to Intelligence Preparation of the Battlefield [O1-2250.20-1006]
- Establish Intelligence Production Requirements and Essential Elements of Terrain or Engineer Information [O1-2250.20-1004]

21. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

22. The brigade conducts mobility operations.

Bn/TFs

[STP 7-11II-MQS, Infantry]

- Conduct Water Obstacle Crossing by a Company [O4-3315.03-0006]
- Conduct Obstacle Breaching [O4-3315.02-0001]

[STP 17-12II-MQS, Armor]

- Conduct an Armor Hasty Breach of a Minefield [01-1241.00-0038]

Breach Force Engineer and Breaching Element

[STP 5-21II-MQS, Engineer]

- Support the Reduction of Complex Obstacles [O1-1940.10-1002]
- Supervise the Clearance of Complex Obstacles [O1-1940.10-1003]
- Direct the Reduction of Complex Obstacles [O1-1940.20-1002]
- Direct the Clearance of Complex Obstacles [O1-1940.20-1003]

[ARTEP 5-145-31-MTP, Engineer Platoon]

- Conduct Minefield Clearing Operations [5-2-0111]
- Conduct Breaching Operations [5-2-0114]

Crossing Area Engineer and Bridging Unit

[STP 5-21II-MQS, Engineer]

- Conduct Engineer Support for River-Crossing Operations [O1-1980.10-1001]
- Direct the Construction of Fords [O1-1980.10-1002]
- Direct the Construction of Combat Roads and Trails [O1-1990.10-1002]

[ARTEP 5-145-31-MTP, Engineer Platoon]

- Support River Crossing Operation [5-2-0600]
- Construct an M4T6 Float Bridge, [5-2-0608]
- Construct a Class 60 Float Bridge [5-2-0613]
- Construct Combat Roads/Trails [5-3-0705]
- Employ the Armored Vehicle Launched Bridge (AVLB) [05-4-0009]

23. The brigade commander and brigade staff change the operation or plan.

ABE

[STP 5-21II-MQS, Engineer]

- Advise Supported Units on Engineer Capabilities and Employment [O1-2250.10-1002]
- Advise the Commander on the Use of Terrain for Combat Operations [O1-2250.20-1008]
- Prepare Engineer Annexes [O1-2250.20-1002]

Engr Bn S3, ABE

[STP 5-21II-MQS, Engineer]

Gate Tasks for Brigade CCF 21

- Plan Engineer Support for River-Crossing Operations [O1-2080.20-1001]

24. The brigade reorganizes on the objective.

Bde S4

[STP 21-II-MQS, Common Tasks]

- Direct vehicle and equipment recovery operations [03-4995.90-0010]

TASKS ORGANIZED BY OUTCOMES

This subcomponent links the tasks with the outcomes the task performance supports. Each outcome is linked with all appropriate tasks. This subcomponent is used for two purposes. The first is to ensure that each CCF outcome is sufficiently supported by all tasks necessary to achieve the outcome. The second is to verify that the outcomes selected support the CCF purpose and that they are complete in that no additional outcomes are required to define the CCF. This subcomponent can be used by trainers to facilitate assessment of training proficiency and to plan training.

Outcome 1

The brigade's mobility plan supports the brigade's scheme of maneuver and the brigade commander's intent.

PLANNING Tasks and Task Elements

1. The brigade receives an order initiating a mission from its higher HQ.

a. The ABE and the brigade engineer attend the division's order brief with the brigade commander, when required. [AN].

b. The ABE notifies the engineer battalion main CP of new orders and missions. [AN].

c. The engineer battalion main CP acquires an OPORD or FRAGO from the division's engineer brigade. [AN].

1) The engineer battalion staff identifies its TO and command and support relationships. [AN].

2) The engineer battalion staff begins parallel planning. [AN].

3) The ABE monitors the planning of the engineer battalion and identifies any conflicts between the engineer brigade's orders and the maneuver brigade's orders. [AN].

d. The engineer battalion commander (brigade engineer), engineer battalion S3, and engineer battalion S2 move to the brigade main CP to assist in mission planning. [AN].

2. The brigade commander and brigade staff conduct mission analysis.

a. The ABE analyzes components of the division's order and engineer annex. [FM 5-100 (Final Draft), p. 7-2; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].

1) The division's mission. [FM 5-100 (Final Draft), p. 7-2].

2) Enemy and friendly situation and intelligence annex. [FM 5-100 (Final Draft), p. 7-2].

3) The brigade and engineer TO. [AN].

4) The division and corps commanders' intents. [AN].

5) The division's scheme of maneuver. [AN].

- 6) The division's scheme of engineer operations. [AN].
- 7) Subunit instructions for the brigade. [AN].
- 8) Coordinating instructions. [AN].
- 9) Service and support paragraph and annex. [FM 5-100 (Final Draft), p. 7-2].
- 10) Command and signal paragraph and annex. [AN].
- 11) Engineer annex. [FM 5-100 (Final Draft), p. 7-2].
- 12) Engineer brigade OPORD. [AN].

b. The ABE determines information from the analysis of the division order and annexes, which includes: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].

1) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].

2) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].

3) Engineer command and support relationships to be established with the maneuver brigade. [FM 5-71-3, p. 2-11].

a) Divisional engineer units attached, under OPCON, or in DS of the brigade. [AN].

b) Other engineer units supporting the brigade (e.g., corps, theater, or host nation engineer units). [AN].

4) Limitations. [FM 5-71-3, p. 2-11].

a) Restrictions. [FM 5-71-3, p. 2-11].

b) Constraints. [FM 5-71-3, p. 2-11].

5) Risk, as applied to the brigade's engineer capability. [FM 5-71-3, p. 2-11].

a) The probability of accomplishing the engineer mission with the given resources. [AN].

b) The amount of risk the division commander is willing to accept (e.g., the destruction of engineer assets) in accomplishing the mission. [FM 5-71-3, p. 2-18].

6) Time available, for use in the ABE's timeline, including: [FM 5-71-3, p. 2-11].

a) Time for the issuance of the brigade's OPORD. [FM 5-71-3, p. 2-18].

b) Time of the issuance of the engineer battalion OPORD. [FM 5-71-3, p. 2-18].

- c) Movement times. [FM 5-71-3, p. 2-18].
 - (1) Start point times. [AN].
 - (2) Release point times. [AN].
- d) The LD or be-prepared times. [FM 5-71-3, p. 2-18].
- c) Times of scheduled rehearsals. [FM 5-71-3, p. 2-18].
- d) Beginning of morning nautical twilight, sunrise, sunset, end of evening nautical twilight, and moon data (e.g., rise, set, and illumination). [FM 5-71-3, p. 2-18].
- e) Division-imposed cut-off times for requesting additional mobility assets and supplies. [AN].
- f) Effective times and locations for attachment and detachment of units (e.g., engineer battalion, corps bridging units) for the mission to overcome obstacles. [AN].
- 7) Essential engineer tasks. [FM 5-71-3, p. 2-11].
 - c. The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].
 - d. The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].
 - e. The ABE informs the engineer battalion commander and the engineer battalion S3 of the results of the brigade's mission analysis. [AN].
 - f. The engineer battalion staff continues parallel planning. [AN].

4. The brigade issues a WARNO.

- a. The ABE provides engineer specific input to the brigade commander and brigade S3 for inclusion in the brigade's WARNO. [AN].
- b. The engineer battalion acquires a WARNO from the brigade and uses the information to continue parallel planning. [AN].
- c. The engineer battalion issues WARNO(s) to its subordinate units. [AN].
- d. The ABE identifies conflicts between the divisional engineer brigade's OPORD and the brigade's WARNOs to the engineer battalion. [AN].
 - 1) Conflicts are reported to both the brigade S3 and the engineer battalion S3. [AN].
 - 2) The brigade S3 and engineer battalion S3 coordinate with the division G3, the engineer brigade S3, and the DIVEN to resolve the conflict. [AN].
 - 3) The brigade commander coordinates with the division commander to resolve conflicts not resolved at the staff level. [AN].

5. The brigade commander issues his planning guidance to the brigade staff.

- a. The brigade commander's restated mission. [FM 5-71-3, p. 2-19].
- b. The division and corps commanders' intents. [FM 5-71-3, p. 2-19].
- c. The brigade commander's intent and end state. [FM 5-71-3, p. 2-19].
- d. The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].
 - 1) Engineer missions. [FM 5-71-3, p. 2-19].
 - 2) The TO of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].
 - a) Engineer battalion command and support relationships: [FM 5-71-3, p. 2-19].
 - (1) Engineer assets that will organize with the brigade's Bn TFs. [AN].
 - (2) Engineer assets that will remain under brigade control. [AN].
 - (3) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].
 - (4) Combat, engineer, and other mobility assets that will be under the engineer battalion's control. [AN].
 - b) Allocation of Bn TF organic mobility assets. [AN].
 - 3) Priorities of engineer support. [FM 5-71-3, p. 2-19].
 - 4) Scheme of maneuver in overcoming obstacles: [AN].
 - a) Method the brigade commander desires to use to breach obstacles or conduct a river crossing (e.g., in-stride or deliberate). [AN].
 - b) Location(s) the brigade commander wants considered to breach obstacles or conduct a river crossing. [AN].
- e. Logistics priorities. [FM 5-100, p. 39].
 - 1) Supply and transport of engineer supplies. [AN].
 - 2) Maintenance and repair for the engineer battalion and other brigade mobility equipment. [AN].
- f. Time and place of the brigade staff decision brief. [FM 5-71-3, p. 2-19].
- g. The IRs. [FM 5-71-3, p. 2-19].
- h. The brigade CCIR. [FM 5-71-3, p. 2-19].
- i. The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].

j. The ABE sends the brigade commander's planning guidance to the engineer battalion S3. [AN].

6. The brigade staff prepares staff estimates.

a. The ABE section prepares the engineer estimate using the EBA. [FM 5-71-3, pp. 2-10 to 2-11; FM 5-71-100, pp. A-2 to A-6; ARTEP 5-145-MTP, Task: 05-1-0002].

1) The ABE section analyzes the brigade AO including: [FM 5-71-3, p. 2-10; FM 5-71-100, pp. A-2 to A-3].

a) Analysis of weather on engineer operations. [FM 5-100, p. 105].

(1) Ambient light data. [FM 5-100, p. 105].

(2) Impact of weather on mobility/countermobility/survivability/sustainment engineering in the brigade AO. [FM 5-100, p. 105].

(3) Precipitation and temperature impact on trafficability. [FM 5-100, p. 105].

(4) Precipitation and temperature impact on rivers in the brigade's AO. [FM 5-100, p. 105].

(a) Depth. [FM 5-100, p. 105].

(b) Width. [AN].

(c) Flow rate. [FM 5-100, p. 105].

(d) Bank conditions. [FM 5-100, p. 105].

(e) Tidal influences. [FM 5-100, p. 105].

(f) Presence of ice (e.g., thickness, ice flows). [FM 5-100, p. 105].

(5) Precipitation and temperature impact on the brigade's or enemy's ability to dig, breach, or emplace obstacles. [AN].

(6) Fog and limited visibility impact on the positioning of obstacles. [FM 5-100, p. 105].

(a) Ability of the brigade or enemy forces to observe their own obstacles. [AN].

(b) Ability of the brigade or enemy forces to find the other's obstacles. [AN].

(7) Engineer vehicle capability to operate with the brigade's combat vehicles during periods of limited visibility. [FM 5-100, p. 105].

b) Analysis of terrain using the factors of OCOKA. [FM 5-100-15, p. A-3; FM 5-100, p. 105; ARTEP 5-145-MTP, Task: 05-1-0002/2].

Tasks Organized by Outcomes for Brigade CCF 21

- (1) Observation and fields of fire (e.g., the impact of brigade or enemy obstacle placement). [FM 5-100, p. 105].
 - (2) Cover and concealment. [FM 5-100, p. 105].
 - (a) Vegetation. [FM 5-100, p. 105].
 - (b) Terrain relief. [FM 5-100, p. 105].
 - (c) Cover and concealment for engineer supply points and equipment parks. [FM 5-100, p. 105].
 - (3) Obstacles. [FM 5-100, p. 105].
 - (a) Locations and significance of existing obstacles (natural and manmade, friendly and enemy). [FM 5-100, p. 105].
 - (b) Potential enemy reinforcing obstacle locations. [FM 5-100, p. 105].
 - (c) Impact on mobility requirements for the brigade mission. [FM 5-100, p. 105].
 - (4) Key/decisive terrain. [FM 5-100, p. 105].
 - (a) Dominant terrain. [AN].
 - (b) Key bridges. [AN].
 - (c) Ford sites. [AN].
 - (d) Passage ways through constricted areas. [AN].
 - (e) Potential engineer tasks required to facilitate friendly control of the terrain. [AN].
 - (5) Avenues of approach: Determines engineer requirements to support rapid movement of combat, CS, and CSS elements along avenues of approach. [FM 5-100, p. 105].
- c) Assessment of other mobility characteristics of terrain: [FM 5-100, p. 105].
- (1) Hydrography of rivers, lakes, and streams. [FM 5-100, p. 105].
 - (2) Man-made obstacles (e.g., railroad cuts and embankments and other linear transportation barriers). [FM 5-100, p. 105].
 - (3) Materials used in buildings and bridges. [FM 5-100, p. 105].
 - (4) Soil composition and its effects on: [AN].
 - (a) The ability to build obstacles. [AN].
 - (b) The ability to bury mines. [AN].

- (c) The ability to use mechanical devices to clear mines and other obstacles. [AN].
- (5) Natural obstacles to movement (e.g., rock fields, marshes, sand dunes, etc.). [AN].
- d) Advantages and disadvantages of the terrain for friendly movement and maneuver. [FM 5-100-15, p. A-3; FM 5-71-3, p. 2-10].
- e) Advantages and disadvantages of the terrain for the enemy's terrain reinforcement. [FM 5-100-15, p. A-3; FM 5-71-3, p. 2-10].
- f) Conclusions about the terrain's impact on accomplishing the brigade mission. [FM 5-100-15, p. A-3].
- 2) The ABE section analyzes possible enemy COAs using the brigade S2's estimate and SITEP. [FM 5-71-3, p. 2-10; FM 5-71-100, p. A-5; ARTEP 5-145-MTP, Task: 05-1-0002/2].
 - a) The ABE section determines enemy: [FM 5-100, p. 105].
 - (1) Strength. [FM 5-100, p. 105].
 - (2) Disposition. [FM 5-100, p. 105].
 - (3) Capabilities. [FM 5-100, p. 105].
 - (4) Recent and present significant activities. [FM 5-100, p. 105].
 - (5) Likely COAs. [FM 5-100, p. 105].
 - b) The ABE section analyzes enemy engineer capabilities and activities to determine: [FM 5-100, p. 105].
 - (1) Availability and capabilities of enemy countermobility equipment. [FM 5-100, p. 105].
 - (2) Enemy tactics for employing obstacles. [FM 5-100, p. 105].
 - (3) Enemy techniques for employing obstacles. [FM 5-100, p. 105].
 - (4) Enemy use of SCATMINES. [FM 5-71-3, p. 2-16].
 - (5) Enemy use of special weapons (e.g., chemical and nuclear mines). [AN].
- 3) The ABE assesses the brigade's mobility resources (engineer battalion assets and assets organic to the brigade's Bn TFs) to support the brigade's mission. [FM 5-71-3, p. 2-11; FM 5-71-100, p. A-6; ARTEP 5-145-MTP, Task: 05-1-0002/2].
 - a) The ABE determines the current brigade situation using the following information: [FM 5-71-100, p. A-7].

Tasks Organized by Outcomes for Brigade CCF 21

- (1) The disposition of Bn TFs and their trains. [FM 5-100, p. 105].
- (2) The possible mobility tasks to support possible brigade COAs (e.g., known/suspected enemy barrier systems or a large river on the brigade axis of advance, etc.). [FM 5-100, p. 105].
- (3) On-going brigade operations and their requirements for engineer support and the use of the brigade's Bn TF's mobility equipment. [FM 5-100, p. 105].

b) The ABE estimates mobility assets available for the mission based on the brigade TO and maintenance reports: [FM 5-71-100, p. A-7].

- (1) The current engineer dispositions for the supporting engineer battalion, the engineer brigade, and corps engineer units supporting the division. [FM 5-100, p. 106].
- (2) The number and types of engineer equipment available in the engineer battalion supporting the brigade. [AN].
- (3) The number and types of engineer equipment available in other engineer units that can be requested for support. [AN].
- (4) The levels of effectiveness and capabilities of the available engineer units. [FM 5-100, p. 106].
- (5) The command or support relationships assigned in the division order between engineer units and maneuver units (e.g., impact of changes to the division allocation of engineer resources to the brigade at prescribed times or events). [FM 5-100, p. 106].
- (6) The organic breaching capability of the brigade's Bn TFs (e.g., the number of plows and rollers). [FM 5-71-3, p. 3-4].
- (7) The availability of other combat/CS units that can assist with mobility operations: [FM 5-100, p. 106].
 - (a) The FA units to provide destructive and obscurative fires. [FM 5-100, p. 106].
 - (b) Chemical units to provide reconnaissance and obscurant support. [FM 5-100, p. 106].
 - (c) Army aviation units to provide reconnaissance, mobility, and direct fires. [FM 5-100, p. 106].
 - (d) The USAF units to provide reconnaissance and fires. [FM 5-100, p. 106].
 - (e) Intelligence units to provide information on enemy situation. [AN].

c) The ABE determines critical logistical resources and their availability. [FM 5-71-100, p. A-7].

Tasks Organized by Outcomes for Brigade CCF 21

- (1) The ABE determines the current dispositions of logistical units and supply points that supply engineer specific supplies (Class IV and Class V). [FM 5-100, p. 106].
 - (2) The ABE determines the engineer supply requirements to support overcoming obstacles. [FM 5-71-3, p. 3-4].
 - (3) The ABE determines the amount of engineer Class IV and Class V supply items available to support the mission. [FM 5-100, p. 106].
 - (4) The ABE determines the transportation resources required to move engineer supplies and equipment to their point of usage. [FM 5-100, p. 106].
- 4) The ABE estimates the total engineer capability available to the brigade based on the current brigade situation, the mobility assets available, and the logistical situation. [FM 5-71-100, p. A-6].
- 5) The ABE develops a crossing site overlay and a crossing site force buildup matrix to provide initial river crossing buildup rate information for possible schemes of maneuver. [FM 90-13, p. A-1].
- a) The crossing site force buildup matrix includes: [FM 90-13, p. A-6].
 - (1) Possible crossing sites in the brigade's sector. [FM 90-13, p. A-6].
 - (2) Preparation time of: [FM 90-13, p. A-6].
 - (a) River banks. [FM 90-13, p. A-6].
 - (b) Rafts. [FM 90-13, p. A-6].
 - (c) Fords. [FM 90-13, p. A-6].
 - (d) Bridges (includes repair of existing bridges). [FM 90-13, p. A-6].
 - (3) Number of rafts crossing per hour. [FM 90-13, p. A-6].
 - (4) Number of raft crossings, cumulative by H-hour sequence. [FM 90-13, p. A-6].
 - (5) Start and finish times (H-hour sequence) for the crossing of Bn TF-sized units. [FM 90-13, p. A-6].
 - b) The crossing area overlay includes: [FM 90-13, p. A-7].
 - (1) Staging areas. [FM 90-13, p. A-7].
 - (2) Routes in the crossing area. [FM 90-13, p. A-7].
 - (3) Holding areas. [FM 90-13, p. A-7].
 - (4) Call forward areas. [FM 90-13, p. A-7].

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- (5) Crossing sites. [FM 90-13, p. A-7].
- (6) Assault sites. [FM 90-13, p. A-7].
- (7) Far-shore attack positions. [FM 90-13, p. A-7].
- (8) SBF positions. [FM 90-13, p. A-7].

b. The brigade S2, with the ABE and the engineer battalion S2, integrates terrain and enemy information into the intelligence estimate and intelligence products including: [ARTEP 71-3-MTP, Task: 71-3-2001/2; FM 5-71-3, p. 2-16].

- 1) A MCOO. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
- 2) A doctrinal template for the brigade AO. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
- 3) An enemy order of battle which identifies: [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - a) Areas where the enemy will likely construct obstacles. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - b) Areas where the enemy will likely use SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - c) Locations where the enemy will likely defend along rivers to deny crossings by the brigade. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - d) How the enemy will defend or attack. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
- 4) A SITEMP for each enemy COA, which depicts: [ARTEP 71-3-MTP, Task: 71-3-2001/3].
 - a) Enemy tactical and protective obstacle efforts. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - b) Enemy use of SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-2001/2].
 - c) Enemy defense of rivers and gaps. [AN].

c. The ABE recommends NAIs and TAIs to the brigade S2 for: [AN].

- 1) Inclusion in the brigade R&S plan. [AN].
- 2) Identification of PIRs and IRs needed for mobility operations. [AN].

d. The brigade S2 prepares a brigade R&S plan, for approval by the brigade S3, that specifies mobility targets. [FM 5-71-3, p. 2-16].

- 1) The brigade R&S plan includes tasks directed to the Bn TFs: [AN].

- a) Observe/reconnoiter NAIs and TAIs for the enemy's use of obstacles and obstacles' characteristics. [AN].
- b) Find bypasses around enemy obstacles. [AN].
- c) Reconnoiter proposed/selected brigade breach sites and areas where Bn TFs may maneuver or position. [AN].
- d) Reconnoiter proposed/selected brigade river crossing sites and the crossing area (e.g., assembly areas, routes, staging areas, holding areas, etc.). [AN].

2) The R&S tasks which cannot be performed by brigade assets are submitted as requests to division or higher; reconnaissance assets include: [AN].

- a) MI assets. [AN].
- b) USAF. [AN].
- c) Army aviation. [AN].
- d) Division cavalry squadron. [AN].
- e) Division and corps long-range surveillance units. [AN].
- f) Special operations forces. [AN].

e. The ABE gives copies of the brigade engineer estimate to the other members of the brigade staff for inclusion in their estimates. [AN].

- 1) The brigade S3 for the commander's/operations estimate. [AN].
- 2) The brigade S4 for the logistics estimate. [AN].
- 3) The brigade FSO for the FS estimate. [AN].
- 4) The brigade CHEMA for the NBC estimate. [AN].

7. The brigade staff develops courses of action.

a. The brigade S3 and brigade staff develop a scheme of maneuver for each defensive COA (e.g., defend, delay, withdrawal, rearward passage of lines). [AN].

- 1) A coordinated movement sequence is developed for: [AN].
 - a) A covering force battle handover. [AN].
 - b) Movement to supplementary positions. [AN].
 - c) Positioning of counterattack forces. [AN].
 - d) Movement of reserves. [AN].
 - e) Withdrawal of units. [AN].

- f) Rearward passage/movement to assembly areas. [AN].
- 2) Routes are identified. [AN].
- 3) Critical engineer tasks are identified. [AN].
- 4) Obstacle placement and execution considers brigade mobility requirements for counterattacks. [AN].
- b. The brigade S3 and brigade staff develop a scheme of maneuver for each offensive COA (e.g., attack, movement to contact, breakout, forward passage of lines). [AN].
 - 1) A coordinated movement sequence is developed: [AN].
 - a) Routes are identified for movement. [AN].
 - b) Maneuver requirements of brigade units are identified from the LD through actions on the final objective. [AN].
 - 2) A breaching, gap crossing, river crossing operation requirement is confirmed. [FM 5-71-3, p. 3-4].
 - 3) Criteria for bypass or in-stride breach are established. [AN].
 - 4) Points of penetration into enemy obstacles and river crossing sites are identified. [AN].
 - 5) Support, breach, and assault forces, and their actions, are identified for a deliberate breach. [AN].
 - 6) A smoke/obscuration employment plan is developed, integrating: [AN].
 - a) The FA and Bn TF mortars. [AN].
 - b) The SMK/DECON platoon. [AN].
 - c) The Bn TF organic smoke generating capabilities. [AN].
 - 7) Engineers are integrated into maneuver formations to maintain momentum, with the bulk of mobility assets with the breach force. [AN].
 - 8) Engineers and maneuver units are tasked to emplace obstacles and mines to protect the brigade flanks and block enemy counterattacks. [AN].
- c. The brigade S3 and brigade staff develop recommendations to organize the brigade for combat. [AN].
 - 1) Lead Bn TFs are task-organized with at least one company of engineers. [AN].
 - 2) The brigade S3 task organizes and sequences the Bn TFs to execute brigade in-stride (Bn TF deliberate or in-stride) breaches or river crossings as part of the brigade's maneuver. [AN].

3) Security is provided for engineer elements not task-organized with Bn TFs and assigned mobility missions (e.g., the engineer battalion organized as a breach force for a brigade deliberate breach). [FM 71-123, p. 3-21].

4) The AD assets are task organized and/or positioned to provide AD coverage of engineer bridging equipment, breaching sites, and river crossing sites. [AN].

5) A brigade crossing area commander, normally the brigade XO, is identified when necessary. [FM 90-13, p. 4-1].

6) A brigade crossing area engineer, normally the battalion commander of the supporting corps' bridging unit, is identified when necessary. [FM 90-13, p. 4-1].

7) The brigade S3 and brigade engineer develop a TO for Bn TFs and engineers to accomplish the brigade's breaching/crossing using the following criteria: [AN].

a) The brigade support force: [AN].

(1) Has a combat-power ratio of 3:1 over the enemy to be suppressed. [FM 71-3, p. 4-39].

(2) Is a tank-heavy force. [AN].

(3) Can isolate the breach zone with direct and indirect fires. [FM 71-3, p. 4-39].

(4) Has chemical smoke platoons and FOs for controlling smoke. [FM 71-3, p. 4-39].

(5) Has AD assets to provide coverage of the near side of the breach. [FM 71-3, p. 6-42].

b) The brigade breach force: [AN].

(1) Is task-organized with engineers (one platoon per lane) and maneuver forces with mobility assets (e.g., rollers, plows). [FM 71-3, p. 4-39].

(2) Can create two lanes per Bn TF through the obstacles. [FM 71-3, p. 4-39].

(3) Has 50% more breaching assets assigned beyond what is required to accomplish the breach (e.g., one engineer platoon). [FM 71-3, p. 4-39].

(4) Is organized and equipped to reduce a variety of obstacles. [FM 71-3, p. 4-40].

c) The brigade crossing area forces: [AN].

(1) Have sufficient float-bridge companies to build two bridges (one corps float-bridge company per 100 meters of river width). [FM 90-13, p. A-1].

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- (2) Include engineers with the brigade crossing area forces to prepare crossing site entries and exits. [FM 71-3, p. 6-41].
- (3) Have MP to direct traffic in the brigade crossing area. [FM 71-3, p. 6-40].
- (4) Have AD elements to provide coverage of the near side of the river. [FM 71-3, p. 6-42].
- (5) Have additional signal resources to C2 the crossing area. [AN].

d) The brigade assault force: [AN].

- (1) Has a combat power ratio of 3:1 over the enemy. [FM 71-3, p. 4-39].
- (2) Is a mechanized-infantry-heavy force in a river crossing. [AN].
- (3) May be combined with the brigade breach force if the enemy force is small. [FM 71-3, p. 4-39].
- (4) Has AD elements to provide coverage on the far side of the breach/river. [FM 71-3, p. 6-42].
- (5) Has sufficient direct fire and indirect FS capability to suppress and destroy the enemy on the far side of the breach. [FM 71-3, p. 4-39].
- (6) Has engineer assets to clear obstacles on the far side of river. [FM 71-3, p. 6-41].

e) The follow-and-support forces: [FM 71-3, p. 6-45].

- (1) Have sufficient combat and CS forces to reinforce the brigade assault or crossing force. [FM 71-3, p. 6-45].
- (2) Contain CSS forces to resupply the brigade assault force. [FM 71-3, p. 6-45].

d. The ABE develops an engineer operational concept which meets the brigade commander's intent and guidance for the use of engineers; the concept allocates: [FM 5-71-3, p. 2-11].

- 1) Engineers and mobility equipment for river crossings. [AN].
- 2) Engineers and mobility equipment for breaching obstacle systems. [AN].
- 3) Engineers and mobility equipment for maintaining routes and lateral communications in the brigade sector. [AN].
- 4) Engineer assets for support of division deception operations. [ARTEP 71-3-MTP, Task: 71-3-8004/1].
- 5) A river crossing timeline for each COA, constructed by the ABE, calculating: [FM 90-13, p. A-1].

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a) The number of vehicles in companies (before TO) crossing the river (not including trains). [FM 90-13, p. A-1].

b) The number of raft loads for each unit. [FM 90-13, p. A-1].

c) The crossing time per unit. [FM 90-13, p. A-1].

e. The brigade FSO develops COAs to support mobility operations by allocating: [FM 71-3, p. 6-41; AN].

1) The FS assets for suppression or destruction of enemy forces defending the breach or crossing site. [FM 71-3, p. 6-41].

2) Smoke missions to deceive the enemy of breaching or crossing sites. [FM 71-3, p. 6-41].

3) Smoke missions to obscure enemy observation of breach or crossing sites. [AN].

4) Counterbattery radar (call-for-fire zones) to identify enemy artillery opposing a breach or crossing. [FM 71-3, p. 6-41].

5) Indirect fires to disrupt enemy counterattacks against breaching or river crossing sites. [FM 71-3, p. 6-41].

6) Indirect fires to block movement of enemy reinforcements. [AN].

7) Indirect fires for final protective fires to protect a bridgehead or breach-head. [FM 71-3, p. 6-41].

8) Indirect fires to support the brigade's maneuver to the breaching or crossing site. [FM 71-3, p. 6-41].

f. The brigade CHEMA develops COAs to support mobility operations. [AN].

g. The brigade S4 and brigade S1 develop CSS COAs to support mobility operations by allocating: [FM 5-71-3, p. 3-4].

1) Recovery vehicles. [FM 5-71-3, p. 3-4].

2) Replacement vehicles and personnel. [FM 5-71-3, p. 3-4].

3) Medical assets (ambulances). [ARTEP 71-3-MTP, Task: 71-3-1301/1].

h. The brigade S2 depicts enemy information on intelligence products for each brigade COA, which includes: [FM 5-71-3, p. 3-4].

1) Location of enemy obstacles. [FM 5-71-3, p. 3-4].

2) Enemy defense and reinforcement of natural obstacles. [FM 5-71-3, p. 3-4].

3) Enemy missions and combat capabilities. [FM 5-71-3, p. 3-4].

a) Enemy unit and weapons locations. [FM 5-71-3, p. 3-4].

- b) Enemy EAs, fire sacks. [FM 5-71-3, p. 3-4].
 - c) Enemy countermobility capabilities. [FM 5-71-3, p. 3-4].
 - i. The ABE informs the engineer battalion S3 of the brigade's COAs. [AN].
- 8. The brigade staff and brigade commander analyze courses of action (war game).**
- a. The brigade XO or brigade S3 presides over the war gaming of each selected COA. [FM 101-5, p. 4-26].
 - b. The ABE war games each engineer COA to ensure that the mobility requirements of each scheme of maneuver can be accomplished. [FM 5-100, p. 106].
 - 1) The ABE identifies critical engineer tasks to support each scheme of maneuver. [FM 5-71-3, p. 3-4].
 - 2) The ABE determines an engineer priority of effort. [FM 5-71-3, p. 2-11].
 - 3) The ABE verifies engineer TO requirements. [FM 5-71-3, p. 2-11].
 - 4) The ABE verifies mobility support requirements for other brigade units. [FM 5-100, p. 106].
 - 5) The ABE compares engineer resource requirements with assets available to determine if the COA is supportable. [FM 5-100, p. 106].
 - 6) The ABE determines differences in river crossing COAs by comparing timelines, brigade site overlays, and crossing overlays. [FM 90-13, p. A-2].
 - 7) The ABE determines sequence of engineer activities. [FM 5-100, p. 106].
 - 8) The ABE determines engineer alternatives: [AN].
 - a) Alternate routes which bypass obstacles. [FM 5-100, p. 106].
 - b) Other engineer COAs that can achieve the desired mobility support and accomplish the brigade mission. [FM 5-100, p. 106].
 - c) Times and/or events for the shifting of engineer units and assets (e.g., TO changes). [FM 5-71-3, p. 2-12].
 - d) Times and/or events for the shifting of engineer priorities. [FM 5-71-3, p. 2-12].
 - 9) The ABE determines risks to engineer units and the mobility concept for each COA. [FM 5-71-3, p. 2-12].
 - 10) The ABE determines engineer and mobility requirements which exceed the brigade's capability. [FM 5-71-3, p. 2-12].
 - c. The ABE determines which scheme of engineer operations best supports each brigade COA. [FM 5-71-3, p. 2-12].

d. The brigade FSO war games FS for the support of mobility operations. [AN].

1) The brigade FSO ensures that the brigade concept of fires provides the required support to: [FM 5-71-3, p. 3-4].

a) The Bn TFs conducting battalion-level breaches, gap crossings, or river crossing operations. [FM 5-71-3, p. 3-4].

b) Brigade deliberate and in-stride breaches, gap crossings, or river crossing operations. [FM 5-71-3, p. 3-4].

2) The brigade FSO verifies that FOs are positioned with the assault and support forces. [FM 71-3, p. 6-41].

3) The brigade FSO verifies that enemy avenues of approach into a bridgehead are targeted with SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-8003; FM 71-3, p. 6-41].

4) The brigade FSO verifies that enemy SCATMINE delivery systems are targeted. [FM 5-71-3, p. 3-4].

5) The brigade FSO coordinates with the brigade S3 to ensure that Bn TFs conducting battalion-level breaches, gap crossings, or river crossings have priority of fires. [FM 5-71-3, p. 3-4].

6) The brigade FSO coordinates with the brigade S3 to ensure that the brigade support force for brigade deliberate or in-stride breaches, gap crossings, or river crossings has priority of fires. [FM 71-3, p. 4-39].

7) The brigade FSO ensures that counterbattery radar cues are identified to locate enemy artillery delivering fires during breaching operations. [AN].

8) The brigade FSO determines fires (smoke, suppressive, and destructive) to support brigade controlled breaches. [FM 5-71-3, p. 3-4].

9) The brigade FSO determines fires (smoke, suppressive, and destructive) to support the brigade's assault as part of a division river crossing. [FM 5-71-3, p. 3-4].

10) The brigade FSO determines electronic warfare actions to support the brigade assault. [AN].

11) The brigade FSO coordinates with the brigade S3 and CHEMA to synchronize maneuver and obscuration by smoke. [AN].

e. The brigade CHEMA war games COAs to support mobility operations. [FM 71-3, p. 2-8].

1) The brigade CHEMA determines the location and coverage for smoke targets (breach/crossing sites and deception targets). [FM 71-3, p. 2-8].

2) The brigade CHEMA determines the time period of smoke missions. [FM 71-3, p. 2-8].

a) Starting event or time for the initiation of smoke missions. [FM 71-3, p. 2-8].

- b) Ending event or time for stopping smoke missions. [FM 71-3, p. 2-8].
- c) Estimated duration time of smoke missions. [FM 71-3, p. 2-8].
- 3) The brigade CHEMA determines visibility requirements. [FM 71-3, p. 2-8].
- 4) The brigade CHEMA determines required resources (e.g., fog oil, smoke generators, smoke pots) to execute the required smoke mission. [AN].
- 5) The brigade CHEMA coordinates with the brigade S3 and FSO to synchronize maneuver, FS delivered smoke, and generated smoke. [AN].
- f. The brigade S1 and S4 war game CSS COAs for mobility operations. [FM 5-71-3, p. 3-4].
 - 1) The brigade S4 verifies supply requirements for overcoming obstacles or river crossings. [FM 5-71-3, p. 3-4].
 - a) Class V with the brigade FSO. [AN].
 - b) Class V (demolitions) with the ABE. [AN].
 - c) Class III (fog oil and fuel) and Class V (smoke pots) with the brigade CHEMA. [AN].
 - 2) The brigade S4 confirms the delivery location and timing of LOGPACs to support engineer, FS, chemical, and maneuver forces. [AN].
 - 3) The brigade S4 verifies the positioning of recovery vehicles. [AN].
 - 4) The brigade S4 and S1 analyze the methods for replacing lost engineer vehicles, mobility equipment, and personnel. [AN].
 - 5) The brigade S1 and the brigade surgeon analyze the treatment and evacuation of casualties based on projected casualty estimates. [ARTEP 71-3-MTP, Task: 71-3-1301/1].
- g. The brigade S2 war games enemy countermobility operations. [FM 5-71-3, p. 3-4].
 - 1) The brigade S2 verifies enemy capabilities and locations where he may employ: [FM 5-71-3, p. 3-4].
 - a) Obstacles. [FM 5-71-3, p. 3-4].
 - b) The SCATMINES. [FM 5-71-3, p. 3-4].
 - c) The NBC weapons. [FM 5-71-3, p. 3-4].
 - 2) The brigade S2 assesses potential enemy responses to the brigade's attempts to bypass obstacles. [FM 5-71-3, p. 3-4].
 - 3) The brigade S2 assesses potential enemy actions against the brigade's efforts to overcome obstacles. [FM 5-71-3, p. 3-4].
- h. The ABE informs the engineer battalion S3 of the COA war game results. [AN].

9. The brigade staff compares courses of action.

a. For each COA, the ABE is prepared to inform the brigade commander and the brigade staff of: [AN].

1) The COA which can best achieve the brigade's mobility requirements. [AN].

2) The COAs that are not supportable by the available brigade mobility capabilities. [AN].

3) Acceptable risks for engineers and the brigade's organic mobility assets. [FM 5-100 (Final Draft), p. B-10].

4) Requirements for additional engineer and maneuver mobility assets to mitigate risks. [FM 5-100 (Final Draft), p. B-10].

b. The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].

10. The brigade commander announces his decision.

a. The brigade commander approves the mobility plan. [AN].

b. The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include:

1) The TO for the brigade maneuver units and engineers. [AN].

2) Requests to division for additional engineer and mobility assets. [AN].

3) Additional, or changes to the plan's, branches and sequels for brigade breaches and river crossings. [AN].

4) The brigade's FS plan in support of mobility operations. [AN].

5) The brigade's use of obscurants in support of mobility operations. [AN].

6) The brigade's logistics plan in support of mobility operations. [AN].

c. The ABE records the brigade commander's decision and guidance in detail and from that facilitates the production of the engineer annex and other products. [AN].

d. The ABE informs the engineer battalion S3 of the brigade commander's decision. [AN].

e. The engineer battalion staff continues parallel planning to develop the engineer battalion OPORD using the information provided by the ABE. [AN].

11. The brigade staff prepares the OPORD or FRAGO.

a. The brigade S3 completes plans for actions at an obstacle (e.g., obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].

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- 1) The employment of mobility assets is arranged in time, space, and purpose to accomplish the brigade commander's intent. [AN].
- 2) All BOS are arranged with regard to time, space, and purpose to ensure that mobility operations are fully supported. [AN].
- 3) The C2 tools are developed to synchronize the brigade's actions to overcome obstacles. [AN].
 - a) The brigade DST. [AN].
 - b) The brigade synchronization matrix. [AN].
 - c) The brigade execution matrix. [AN].
- 4) Maneuver units are task-organized with engineers to ensure that brigade units can maintain mobility. [FM 71-123, p. 3-34].
- 5) Unit and/or type of vehicle (equipment) priority for a river crossing during rafting and bridging phases is determined. [ARTEP 71-3-MTP, Task: 71-3-8004/1/2].
- 6) Requirements for employment of Bn TF mine plows and rollers are specified. [AN].
- 7) Missions are assigned to subordinate elements as part of brigade deliberate breaches and river crossings (as part of a division river crossing). [AN].
 - a) The brigade support force is assigned missions to: [FM 90-13-1, p. 2-3].
 - (1) Isolate the point of penetration or the river crossing site with fires, suppressing or destroying enemy forces covering the obstacle or crossing site. [FM 90-13-1, p. 2-3].
 - (2) Fix the enemy in position, denying him the ability to maneuver and destroying any weapons capable of firing on the breaching or crossing force. [FM 90-13-1, p. 2-3].
 - (3) Control obscuring smoke delivered by artillery, mortars, generators, and/or smoke pots. [FM 90-13-1, p. 2-3].
 - b) The brigade assault force is assigned missions to: [FM 90-13-1, p. 2-3].
 - (1) Assist the support force in suppressing the enemy during a breaching operation. [FM 90-13-1, p. 2-3].
 - (2) Seize objectives and destroy enemy forces on the far side of a breach or river crossing. [FM 90-13-1, p. 2-3].
 - (3) Establish a breach-head/bridgehead. [FM 90-13-1, p. 2-3].
 - c) The brigade breach force is assigned missions to: [FM 90-13-1, pp. 2-3 to 2-4].

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- (1) Create lanes through the obstacle. [FM 90-13-1, pp. 2-3 to 2-4].
 - (2) Secure lodgement on the far side of the obstacle to allow deployment of the brigade assault force. [FM 90-13-1, pp. 2-3 to 2-4].
 - (3) Mark and improve lanes through the obstacle. [FM 90-13-1, pp. 2-3 to 2-4].
 - (4) Hand over lanes to follow-on units for continued improvement. [FM 90-13-1, pp. 2-3 to 2-4].
- d) The brigade follow-and-support force is assigned missions to: [FM 71-123, p. 6-31].
- (1) Overwatch and provide direct and indirect FS. [FM 71-123, p. 6-31].
 - (2) Secure the crossing site. [FM 71-123, p. 6-31].
 - (3) Follow and continue the attack of the brigade assault force. [FM 71-123, p. 6-31].
 - (4) Provide CSS support. [FM 71-123, p. 6-31].
- e) The brigade crossing area HQ (established for division river crossings) and units are assigned missions to: [FM 90-13, p. 4-2].
- (1) Control movement and positioning of all elements transiting or occupying positions within the brigade crossing area. [FM 90-13, p. 4-2].
 - (2) Provide security for elements at the crossing sites. [FM 90-13, p. 4-2].
 - (3) Maintain the crossing site and staging areas. [FM 90-13, p. 4-2].
- b. The brigade FSO completes plans for lethal and nonlethal fires to support the brigade's mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
- 1) The brigade FSO coordinates with the brigade CHEMA to plan the use of smoke to obscure breaches and river crossings. [FM 3-50, p. 17].
- a) Smoke missions to screen the movement of the brigade's units. [FM 6-20-40, p. 3-19].
- b) Smoke missions to obscure enemy observation and targeting. [FM 6-20-40, p. 3-19].
- 2) The brigade FSO targets known and suspected enemy observation and fighting positions overwatching breaching and river crossing sites. [FM 6-20-40, p. 3-19].
 - 3) The brigade FSO assigns priorities of fires to support mobility operations to: [AN].
- a) The Bn TFs conducting deliberate and in-stride breaches as part of the brigade's main effort. [AN].

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b) The brigade support force while the brigade breach force clears lanes through the enemy obstacle system and establishes a lodgement on the far side of an obstacle. [AN].

c) The brigade assault force upon passing through the breach and continuing the brigade attack. [AN].

d) The brigade support force, during a river crossing, until a far-shore lodgement is established. [AN].

e) The brigade assault force, during a river crossing, upon establishing a far-shore lodgement. [AN].

f) The follow-on forces, upon their assault out of a far-shore lodgement. [AN].

4) The brigade FSO includes air and artillery delivered SCATMINES in the FS plan. [AN].

5) The brigade FSO prepares brigade FS synchronization tools: [AN].

a) The brigade FS execution matrix. [AN].

b) The brigade target list. [AN].

c) The brigade FS overlay. [AN].

k. The brigade CHEMO completes plans for the employment of smoke in support of mobility operations. [AN].

1) The brigade CHEMO coordinates with the brigade FSO and the smoke platoon leader for the use of smoke to obscure breaches and river crossings. [FM 3-50, p. 17].

2) The brigade CHEMO sets the priority for the delivery of smoke. [ARTEP 3-117-40-MTP, Task: 3-4-0004/9].

3) The brigade CHEMO provides information to the brigade S3 for inclusion in the brigade OPOD: [ARTEP 3-117-40-MTP, Task: 3-4-0004/10].

a) The type of smoke mission (e.g., screen, haze, obscuration). [AN].

b) Smoke targets (e.g., obscuration targets, screen location). [AN].

c) Smoke assets to use. [AN].

d) Size and duration of the smoke mission. [AN].

e) Time for emplacing smoke on target. [AN].

f) Location of primary and alternate smoke positions for the smoke platoon. [AN].

g) Allocation of matériel needed to support mobility missions. [AN].

- (1) Smoke pots. [AN].
- (2) Smoke generators. [AN].
- (3) Fog oil. [AN].
- (4) Artillery and mortar rounds. [AN].

d. The brigade S4 and brigade S1 complete the plan for logistical support of mobility operations. [AN].

1) The brigade S4 establishes: [AN].

a) Priorities for maintenance support and/or recovery and evacuation by unit and equipment type. [FM 101-5, p. H-76].

b) Delivery timing of mobility LOGPACs of high usage supplies (e.g., artillery and mortar smoke munitions, fog oil, MICLICs). [AN].

c) Delivery locations for mobility supply LOGPACs. [AN].

d) Priorities for all classes of supply. [CGSC Text 101-6, p. 1-19].

e) Priorities for transportation of mobility equipment and supply. [AN].

2) The brigade S1 and brigade surgeon complete a casualty treatment and evacuation plan to support brigade breaches and river crossings. [AN].

3) The brigade S1 plans safety measures and checks for a river crossing. [AN].

e. The ABE completes the plan for the brigade river crossing. [FM 90-13, p. A-2].

1) The ABE constructs an initial vehicle-crossing capability chart for each crossing site; it includes: [FM 90-13, p. A-2].

a) Crossing means (e.g., bridge, ford, raft). [FM 90-13, p. A-2].

b) Trips per hour (rafts) for both day and night operations. [FM 90-13, p. A-2].

c) Vehicles per hour (bridges and fords). [FM 90-13, p. A-2].

d) An H-hour sequence of construction and number of vehicles crossing. [FM 90-13, p. A-2].

2) The ABE determines Bn TF crossing periods using the crossing sites' capacity, brigade scheme of maneuver, and final TO of Bn TFs. [FM 90-13, p. A-2].

3) The ABE adds Bn TF crossing periods to the initial vehicle-crossing capability chart. [FM 90-13, p. A-2].

4) The ABE determines adjustments necessary in Bn TF crossing sites to ensure that the Bn TFs arrive on the far-shore by the times they are needed in the plan. [FM 90-13, p. A-2].

5) The ABE coordinates adjustments in the Bn TF crossing sites with the brigade S3. [FM 90-13, p. A-2].

6) The ABE develops C2 tools for the river crossing, including: [FM 90-13, p. A-1].

a) Crossing synchronization matrix. [FM 90-13, p. A-12].

b) Engineer execution matrix. [FM 90-13, p. A-13].

c) Crossing overlay. [FM 90-13, p. 6-6].

f. The ABE prepares the brigade OPORD's engineer support subparagraph which contains: [ARTEP 71-3-MTP, Task: 71-3-3002/1].

1) Engineer command and support relationships for maneuver units that are in consonance with the scheme of maneuver. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

2) Priority of engineer work. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

3) Engineer tasks. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

4) Priority of engineer support by unit. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

g. The ABE prepares the brigade OPORD's engineer annex which contains: [AN].

1) The task-organization section, to include: [FM 5-71-3, p. D-7].

a) Engineer units task-organized with Bn TFs or under brigade control. [FM 5-71-3, p. D-7].

b) All engineer units supporting the brigade and units task-organized to other than their parent unit are listed. [FM 5-71-3, p. D-7].

c) Command and support relationships for brigade engineer units. [FM 5-71-3, p. D-7].

d) Times and/or events for changes in the engineer TO during the operation. [FM 5-71-3, p. D-7].

2) The situation paragraph, to include: [FM 5-100 (Final Draft), p. C-7].

a) Critical terrain aspects that impact on engineer operations. [FM 5-100 (Final Draft), p. C-7].

b) Critical weather aspects that impact on engineer operations. [FM 5-100 (Final Draft), p. C-7].

c) Enemy engineer capability and activity. [FM 5-100 (Final Draft), p. C-7].

(1) Known and templated locations of enemy engineer units. [AN].

(2) Significant enemy maneuver and engineer capabilities that impact on engineer operations. [AN].

- (3) Expected employment of enemy engineers based on the most probable enemy COA. [AN].
 - (4) Known and templated locations of enemy obstacles. [AN].
- d) Friendly forces. [AN].
 - (1) Designation, location, and activities of the engineer brigade and adjacent engineer units that impact on the brigade or that require coordination. [AN].
 - (2) Non-engineer units capable of assisting in engineer operations. [AN].
 - (3) Non-engineer units capable of emplacing SCATMINES. [AN].
- 3) The maneuver brigade's mission statement. [FM 5-100 (Final Draft), p. C-7].
- 4) The execution paragraph, to include: [FM 5-71-3, pp. D-7 to D-9].
 - a) The scheme of engineer operations, including: [FM 5-71-3, pp. D-7 to D-9].
 - (1) A description of engineer operations supporting the brigade maneuver plan. [FM 5-71-3, pp. D-7 to D-9].
 - (2) The engineers' main effort by mission and unit for each phase of the brigade operation. [FM 5-71-3, pp. D-7 to D-9].
 - (3) Division-level missions that impact on the brigade. [FM 5-71-3, pp. D-7 to D-9].
 - b) Subunit instructions, including: [FM 5-71-3, pp. D-7 to D-9].
 - (1) Specific engineer company or platoon tasks not contained in the brigade OPORD. [FM 5-71-3, pp. D-7 to D-9].
 - (2) Engineer tasks necessary to ensure unity of effort. [FM 5-71-3, pp. D-7 to D-9].
 - (3) Brigade-level tasks assigned to the engineer battalion. [FM 5-71-3, pp. D-7 to D-9].
 - c) Coordinating instructions, including: [FM 5-71-3, pp. D-7 to D-9].
 - (1) Critical engineer instructions common to two or more units of the brigade or the engineer battalion not covered in the brigade OPORD. [FM 5-71-3, pp. D-7 to D-9].
 - (2) Brigade PIR that must be reported to the engineer battalion staff and brigade engineer. [FM 5-71-3, pp. D-7 to D-9].
 - (3) Mission reports that the ABE requires. [AN].

- 5) The service support paragraph, to include: [FM 5-71-3, p. D-9].
 - a) Brigade allocations of command-regulated supply classes that impact on the engineer battalion's CSR. [FM 5-71-3, p. D-9].
 - b) Class V supply distribution plan. [FM 5-71-3, p. D-9].
 - (1) The supply method to be used for delivery of engineer company Class V. [FM 5-71-3, p. D-9].
 - (2) Tentative locations for Class V supply points or locations for linkup with corps' push packages. [FM 5-71-3, p. D-9].
 - c) Transportation. [FM 5-71-3, p. D-9].
 - (1) Allocation and prioritization of divisional and brigade assets dedicated to hauling the brigade's engineer Class V. [FM 5-71-3, p. D-9].
 - (2) Requirements for the brigade to supplement division transportation to move engineer equipment and supplies. [FM 5-71-3, p. D-9].
 - 6) Health services support: Designates the support for corps engineer units performing missions in the brigade area. [FM 5-71-3, p. D-9].
 - 7) Command and signal paragraph, to include: [FM 5-71-3, p. D-9].
 - a) Command. [FM 5-71-3, p. D-9].
 - (1) The location of key engineer leaders. [FM 5-71-3, p. D-9].
 - (2) The engineer chain of command. [FM 5-71-3, p. D-9].
 - (3) The Bn TFs designated for controlling specific engineer mobility efforts. [FM 5-71-3, p. D-9].
 - b) Signal. [FM 5-71-3, p. D-9].
 - (1) Communication networks monitored by the brigade engineer for reports, if different than the brigade TSOP. [FM 5-71-3, p. D-9].
 - (2) Critical engineer reporting requirements of subordinates, if not covered in the coordinating instructions or TSOP. [FM 5-71-3, p. D-9].
 - h. The ABE submits requests for additional engineer and mobility assets through the brigade S3 (requests are forwarded to the division G3 and DIVEN). [FM 5-71-3, p. 2-12].
- 12. The brigade commander and brigade staff issue the OPORD/FRAGO to subordinate elements.**
- a. The brigade S2 briefs: [AN].
 - 1) Intelligence estimate. [AN].

- 2) The MCOO. [AN].
- 3) The SITEMP. [AN].
- 4) The brigade R&S plan. [AN].
- b. The brigade S3 briefs: [AN].
 - 1) The TO of the brigade. [AN].
 - 2) Concept of engineer employment. [AN].
 - 3) Specific mobility missions of the Bn TFs: [AN].
 - a) Support force. [AN].
 - b) Assault force. [AN].
 - c) Breaching force. [AN].
 - d) Follow-and-support force. [AN].
 - 8) Concept for movement and maneuver to the obstacle breaching or river crossing point. [AN].
 - 9) Actions at the breaching or crossing site. [AN].
 - 10) The C2 for the brigade crossing area. [AN].
- c. The brigade FSO briefs the FS plan for the brigade's mobility missions. [AN].
 - 1) The SCATMINE fires. [AN].
 - 2) Smoke. [AN].
 - 3) Fires on enemy forces covering the obstacles. [AN].
 - 4) Counterbattery fires. [AN].
 - 5) Fires on critical enemy reserves or counterattacking forces. [AN].
- d. The brigade engineer briefs: [AN].
 - 1) The Bn TF mobility tasks as part of a brigade breach or river crossing operation. [AN].
 - 2) Mission and actions of supporting engineer units (e.g., corps bridging unit). [AN].
 - 3) Missions of engineer units including changes to engineer company missions by event or time (e.g., change of command and support relationships). [AN].
- e. The brigade CHEMO briefs the employment and operations of attached chemical units supporting mobility operations (e.g., smoke). [AN].

- f. The brigade S4 briefs supply and maintenance support for mobility missions. [AN].
- g. All battalion commanders give the brigade commander a confirmation brief in which they demonstrate an understanding of their mobility, movement, and security missions. [AN].
- h. The brigade S3 section disseminates the brigade OPORD with overlays, FS execution matrix, and rehearsal schedule. [AN].
- i. Subordinate battalion staffs confirm and verify priorities and schedules for mobility activities, preparations, and rehearsals with the brigade staff. [AN].

PREPARATION Tasks and Task Elements

13. The brigade staff evaluates and updates staff products.

- a. The brigade S2 and S2 section evaluate and update staff products: [AN].
 - 1) The brigade S2 and S2 section evaluate information and intelligence. [AN].
 - a) Enemy countermobility capabilities and dispositions are verified. [AN].
 - b) Enemy strengths and weakness are determined to confirm the best breach or crossing site. [AN].
 - c) Probable enemy COAs countering breaches or river crossings are confirmed. [AN].
 - d) Adjusted maneuver plans from subordinate units are evaluated to determine the need to change the brigade R&S plan. [AN].
 - 2) The brigade S2 and S2 section update the MCOO, SITEMP, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - a) Enemy countermobility capabilities and dispositions are annotated (e.g., location of positions, obstacles, contaminated areas, reserves). [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - b) New information is integrated into the enemy situation template, MCOO, event template, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
- b. The brigade S3 and S3 section evaluate and update staff products: [AN].
 - 1) The brigade S3 and S3 section evaluate mobility data and intelligence information. [AN].
 - a) Subordinate units' OPORDs are evaluated to ensure synchronization with the brigade breach or crossing plan. [AN].
 - b) The Bn TF and engineer battalion commanders' recommended changes and requests for additional resources to the mobility plan are evaluated. [AN].
 - c) Results of the brigade rehearsals are evaluated for synchronization of all BOS. [AN].

d) Mobility information from the brigade S2 and brigade elements is used to verify, analyze, and identify necessary changes in the mobility plan. [AN].

- (1) Routes. [AN].
- (2) Assault positions. [AN].
- (3) The SBF positions. [AN].
- (4) Crossing/breaching sites. [AN].
- (5) Staging areas. [AN].
- (6) The brigade task-organization. [AN].
- (7) The brigade scheme of maneuver. [AN].
- (8) The Bn TF missions. [AN].
- (9) Engineer battalion missions. [AN].
- (10) Control measures. [AN].

e) Unit status reports are evaluated to: [AN].

- (1) Determine if adequate mobility systems are available to accomplish the mobility plan. [AN].
- (2) Ensure that required preparation tasks are completed and the brigade timelines are met. [AN].

f) The SPOTREPs are evaluated to confirm SITEMP and other intelligence products. [AN].

g) The updated SITEMP is evaluated to identify necessary changes to the mobility plan. [AN].

h) The updated engineer estimate is evaluated to identify necessary changes to the mobility plan. [AN].

i) Recommended changes to the FS plan are evaluated to ensure that the required indirect fires are available to support the mobility plan. [AN].

j) Recommended changes to the smoke plan are evaluated to ensure that required smoke assets are available to support the mobility plan. [AN].

k) Updates to the logistics plan and the brigade supply status are evaluated to ensure that the required logistical support is available to support the mobility plan. [AN].

2) The brigade S3 and S3 section update the brigade plan, operations estimate, and other C2 products using newly evaluated information. [AN].

a) Operations estimate. [AN].

- b) The DST. [AN].
- c) Execution matrix. [AN].
- d) Plans. [AN].
- e) Overlays. [AN].
- f) Unit and equipment status boards. [AN].
- g) Decision graphics (e.g., combined combat effectiveness and Bn TF composition graphics). [FM 101-5-1, p. 3-4].
- c. The brigade FSO and FSE evaluate and update staff products: [AN].
 - 1) The brigade FSO and FSE evaluate FS information that supports overcoming obstacles. [AN].
 - a) Bn TF FS plans are compared and deconflicted with the brigade FS plan for a brigade breach or river crossing. [AN].
 - b) New enemy information from the brigade S2 and DIVARTY sources is evaluated. [AN].
 - c) The amount of FS resources available (both lethal and non-lethal) to support a breach or river crossing is evaluated. [AN].
 - d) Shortcomings are identified in the ability of artillery to deliver indirect fires, including SCATMINE and obscuration fires. [AN].
 - e) The need to recommend brigade DST changes to the brigade S3 is evaluated. [AN].
 - f) FS asset positioning and displacement plans are evaluated to ensure that the required FS is provided for a brigade breach and/or river crossing. [AN].
 - g) The results of the brigade rehearsals are evaluated to ensure that the brigade FS plan supports the brigade maneuver plan as intended. [AN].
 - 2) The brigade FSO and FSE update and integrate FS information that supports overcoming obstacles into the: [AN].
 - a) FS estimate. [AN].
 - b) FS plan. [AN].
 - c) FS overlay. [AN].
 - d) FS execution matrix. [AN].
- d. The engineer battalion S3 and S3 section evaluate and update staff products: [AN].
 - 1) The engineer battalion S3 and S3 section evaluate information for overcoming obstacles. [AN].

Tasks Organized by Outcomes for Brigade CCF 21

a) Progress on engineer mobility tasks and unit preparation for the brigade's mission are compared to timelines and required results and shortcomings are identified. [AN].

b) Reports on engineer unit matériel readiness are evaluated to determine if engineer units can complete their missions in support of the breach or crossing. [AN].

c) Engineer company OPORDs are evaluated to determine if the orders support the brigade's mission to breach or cross an obstacle. [AN].

d) Obstacle and enemy information from the brigade and engineer battalion S2s are analyzed for their effects on engineer missions and the brigade's ability to breach or cross an obstacle. [AN].

e) Ability of artillery to deliver SCATMINE and obscuration fires is evaluated (with the brigade FSO) and shortcomings are identified. [AN].

f) Results of the brigade rehearsals are evaluated to ensure that the brigade mobility plan supports the brigade maneuver plan as intended. [AN].

2) The engineer battalion S3 and S3 section update engineer priorities, schedules for engineer effort, and the engineer estimate to reflect the current situation. [AN].

e. The brigade CHEMA and NBC section evaluate staff products: [AN].

1) The brigade CHEMA and NBC section evaluate information for executing smoke missions during brigade mobility operations. [AN].

a) Supply and matériel readiness of the smoke unit are evaluated for providing smoke and shortcomings are identified and changes to the mission determined. [AN].

b) Weather forecasts are evaluated to determine changes required in the number and positioning of smoke generating equipment, munitions (e.g., smoke pots), and fires. [AN].

c) Changes in the FS capability to fire smoke are evaluated to determine needed changes in the number and positioning of smoke-generating equipment and munitions. [AN].

d) Changes to the projected locations of smoke generators are assessed to ensure that terrain requirements are deconflicted. [AN].

e) Results of the brigade rehearsals are evaluated to ensure that the brigade smoke plan supports the brigade mobility plan as intended. [AN].

2) The brigade CHEMA and NBC section integrate new information into the NBC plan. [AN].

f. The brigade S4 and S4 section evaluate and update staff products: [AN].

1) The brigade S4 and S4 section evaluate information for providing logistical support. [AN].

a) The CSS assets are evaluated to determine if they are positioned to support

the operation for the maximum time without displacement. [ARTEP 71-3-MTP, Task: 71-3-4001/5].

b) Recovery and repair of mobility assets are evaluated to determine if they can be returned to duty to support the brigade mission. [AN].

c) Filling of brigade requests for Class V for engineers and maneuver units is evaluated to determine the probability of their arrival in time for the mission. [AN].

d) Results of the brigade rehearsals are evaluated to ensure that the brigade CSS plan supports the brigade mobility plan as intended. [AN].

2) The brigade S4 and S4 section integrate new CSS information into the CSS plan. [AN].

14. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

a. The brigade XO coordinates the actions of the brigade staff preparing and updating mobility plans. [ARTEP 71-3-MTP, Task: 71-3-0001/6].

b. The brigade S2 and S2 section disseminate information for overcoming obstacles: [AN].

1) Updated R&S plan, PIR, SITEP, event template, and MCOO are posted in the brigade CPs and passed to subordinate battalion S2s. [AN].

2) Intelligence information gathered by brigade reconnaissance elements is disseminated. [AN].

a) The brigade S3 is provided with information on brigade routes, staging areas, assault positions, SBF positions, best site for the breaching/crossing, and enemy positions. [AN].

b) The ABE is provided with engineer technical data (e.g., river bank information, water depth, water speed), obstacle information (e.g., location, composition, construction), terrain information, and the results of the route reconnaissance (if performed). [AN].

c) The brigade FSO is provided with information on enemy positions, assembly areas, avenues of approach, high payoff targets. [AN].

d) The division G2 is provided with requested mobility PIR and IR. [AN].

c. The brigade S3 disseminates information and coordinates actions for synchronizing the mobility plan: [AN].

1) The brigade S3 recommends changes to the brigade scheme of maneuver and/or task-organization to overcome obstacles to the brigade commander. [AN].

2) The brigade S3 coordinates changes in the mobility plan with: [AN].

a) The brigade FSO for the delivery of fires. [AN].

- b) The brigade CHEMA for smoke missions support. [AN].
- c) The engineer battalion commander or ABE for engineer support. [AN].
- d) The Bn TF S3s for the scheme of maneuver. [AN].
- 3) The brigade S3 ensures that coordination of all BOS for mobility missions is accomplished within the brigade staff and between the brigade staff and Bn TF staffs. [AN].
- 4) The brigade S3 disseminates the updated operations estimate, DST, execution matrix, overlays, and OPOD/FRAGO as required to the brigade staff and subordinate battalions. [AN].
- d. The brigade FSO and FSE disseminate information and coordinate actions for overcoming obstacles: [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].
 - 1) The brigade FSO and FSE coordinate with the brigade S3 for the delivery of indirect fires to support mobility operations. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].
 - 2) The brigade FSO and FSE coordinate changes with the brigade CHEMA for smoke missions supporting mobility operations. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].
 - 3) The brigade FSO and FSE distribute changes to the FS plan, FS overlay, and FS execution matrix to the brigade staff and subordinate units. [ARTEP 71-3-MTP, Task: 71-3-3005/1, 9001/2].
- e. The ABE and ABE section disseminate information and coordinate actions for overcoming obstacles: [AN].
 - 1) The ABE and ABE section coordinate with the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
 - a) The ABE and ABE section provide terrain information from the updated engineer estimate, Terra Base, and EBA to the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
 - b) The ABE and ABE section pass completed minefield reports to the brigade S2 for inclusion in the MCOO. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
 - 2) The ABE and ABE section pass engineer technical data from the brigade S2 to the engineer battalion S2. [AN].
 - 3) The ABE and ABE section pass changes in the engineer battalion's mobility missions to the engineer battalion S3. [AN].
 - 4) The ABE and ABE section ensure the submission of SCATMINE reports, records, and warnings to the brigade S3 and DIVEN. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 5) The ABE and ABE section forward reports of enemy minefield locations to the brigade S3 and S2. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 6) The ABE and ABE section report to the DIVEN enemy and brigade obstacle/breach locations that impact on friendly maneuver. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

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7) The ABE and ABE section coordinate between the brigade staff and supporting engineer units (e.g., corps' bridging company) to ensure that they have all the matériel, assets, and information needed for their mission. [FM 71-123, p. 6-26].

8) The ABE and ABE section conduct coordination for the breaching of a friendly obstacle system (e.g., during a passage of line). [FM 71-3, p. 6-15].

a) The ABE and ABE section gather information from the stationary force engineer concerning: [FM 71-3, p. 6-15].

(1) Intelligence on local enemy engineer activities. [FM 71-3, p. 6-15].

(2) Location and status of friendly and enemy obstacles. [FM 71-3, p. 6-15].

(3) Location of bypasses around or lanes through obstacle systems. [FM 71-3, p. 6-15].

b) The ABE and ABE section coordinate the opening and closing of lanes for the passage of the brigade. [FM 71-3, p. 6-15].

(1) Times. [FM 71-3, p. 6-15].

(2) Location. [FM 71-3, p. 6-15].

(3) Signals. [FM 71-3, p. 6-15].

(4) Guides. [FM 71-3, p. 6-15].

c) The ABE and ABE section confirm the location of obstacles and marked lanes or bypasses through physical inspection. [FM 71-3, p. 6-15].

9) The ABE and ABE section disseminate information gathered from visit(s) with the stationary force to the brigade S3 and engineer battalion S3. [AN].

f. The engineer battalion commander coordinates mobility actions. [AN].

1) The engineer battalion commander coordinates with the brigade S3 on changes to mobility tasks and missions for the engineer companies. [AN].

2) The engineer battalion commander makes recommendations to the brigade commander on task-organization refinements and the requesting of additional engineer resources. [AN].

3) The engineer battalion commander coordinates with corps engineer assets supporting the brigade. [AN].

4) The engineer battalion commander coordinates with the engineer brigade to ensure that road building material and equipment are prepositioned near river crossing sites to maintain roads. [FM 71-123, p. 6-39].

g. The brigade CHEMA and NBC section disseminate information and coordinate actions for overcoming obstacles: [ARTEP 3-117-40-MTP, Task: 3-4-0005/1/2].

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- 1) The brigade CHEMA and NBC section coordinate with the brigade S3 for changes to smoke missions and locations of decontamination sites. [AN].
- 2) The brigade CHEMA and NBC section coordinate with the brigade FSO for smoke mission changes supporting mobility operations. [AN].
- 3) The brigade CHEMA and NBC section pass information on changes to the smoke unit position or status to the brigade staff. [AN].
- h. The brigade S4 disseminates information and coordinates CSS actions for overcoming obstacles: [AN].
 - 1) The brigade S4 passes changes for the delivery of Class IV and Class V to the engineer battalion and Bn TF S4s. [AN].
 - 2) The brigade S4 submits additional supply requests for overcoming obstacles to the division G4. [AN].
 - 3) The brigade S4 coordinates with the units tasked to conduct breaching or river crossing operations to select locations for recovery vehicles and emergency engineer supplies near the obstacle or crossing site. [FM 71-123, p. 6-37]
 - 4) The brigade S4 coordinates with the brigade S3 to ensure that movement of supplies necessary for overcoming obstacles is integrated into the brigade movement plan. [FM 71-123, p. 6-26].
 - 5) The brigade S4 coordinates with the FSB S3 to ensure that Class IV and Class V materials are requisitioned and transported to designated work sites. [ARTEP 71-3-MTP, Task: 71-3-8005/2].

15. The brigade commander and brigade staff change the operation or plan.

- a. The brigade commander assesses his estimate of the situation to ascertain the validity of the current plan and determines: [AN].
 - 1) Whether the plan can be accomplished without any changes. [AN].
 - 2) Whether the plan's scheme of maneuver or mobility plan requires changes. [AN].
 - 3) Which decision-making process to use in changing the current plan. [AN].
 - a) The DDMP. (See tasks 2 to 12 in Planning .) [AN].
 - b) The time-constrained decision-making process. [AN].
- b. The brigade commander gives guidance to the brigade staff for revision of the mobility plan after developing a new mission concept. [AN].
 - 1) The brigade commander's restated mission, if changed. [FM 5-71-3, p. 2-19].
 - 2) The brigade commander's intent and end state, if changed. [FM 5-71-3, p. 2-19].

- p. 2-19].
- 3) The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].
 - a) Engineer missions. [AN].
 - b) The task-organization of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].
 - (1) Engineer battalion command and support relationships: [AN].
 - (a) Engineer assets that will organize with the brigade's Bn TFs. [AN].
 - (b) Engineer assets that will remain under brigade control. [AN].
 - (c) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].
 - (d) Engineer and other mobility assets that will be under the engineer battalion's control. [AN].
 - (2) Allocation of Bn TF organic mobility assets. [AN].
 - c) Priorities of engineer support. [FM 5-71-3, p. 2-19].
 - d) The scheme of maneuver in overcoming obstacles: [AN].
 - (1) The method the commander desires to use to breach obstacles or cross a river (e.g., in-stride or deliberate). [AN].
 - (2) The location(s) the commander wants considered to breach obstacles or cross a river. [AN].
 - 4) Logistics priorities. [FM 5-100, p. 39].
 - a) Supply and transport of engineer supplies. [FM 5-100, p. 39].
 - b) Maintenance and repair for the engineer battalion and other brigade pieces of mobility equipment. [FM 5-100, p. 39].
 - 5) The IRs. [FM 5-71-3, p. 2-19].
 - 6) The brigade commander's CCIR. [FM 5-71-3, p. 2-19].
 - 7) The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].
 - 8) The ABE sends the brigade commander's guidance to the engineer battalion S3. [AN].
- c. The ABE analyzes the new mission concept to determine mobility tasks and requirements. [AN].
- 1) The ABE determines the following information from the brigade commander's

guidance: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].

a) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].

b) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].

c) Engineer task-organization. [FM 5-71-3, p. 2-11].

d) Limitations: [FM 5-71-3, p. 2-11].

(1) Restrictions. [FM 5-71-3, p. 2-11].

(2) Constraints. [FM 5-71-3, p. 2-11].

e) Identification of essential engineer tasks in the division order. [FM 5-71-3, p. 2-11].

2) The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].

3) The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].

d. The brigade staff develops new mobility COAs. [AN]

1) The brigade S3 and brigade staff develop COAs for maneuver. [AN].

a) The brigade S3 and brigade staff determine required changes to breaching, gap crossing, or river crossing operations. [FM 5-71-3, p. 3-4].

b) The brigade S3 and brigade staff allocate forces to accomplish the mission (brigade task-organization). [FM 5-71-3, p. 3-4].

2) The ABE develops COAs for engineer support of brigade COAs. [FM 5-71-3, p. 2-11].

3) The brigade FSO develops FS COAs that support mobility operations. [FM 71-3, p. 6-41; AN].

4) The brigade CHEMA develops COAs that support mobility operations. [AN].

5) The brigade S4 and brigade S1 develop CSS COAs that support mobility operations. [FM 5-71-3, p. 3-4].

e. The brigade staff analyzes COAs (wargame). [AN].

1) The brigade S3 and brigade staff prepare the scheme of maneuver. [AN].

2) The brigade S3 and brigade staff organize the brigade for mobility operations. [AN].

3) The ABE wargames each engineer COA against each anticipated enemy COA. [FM 5-100, p. 106].

4) The ABE determines if the scheme of engineer operations supports the COA and the maneuver plan. [FM 5-71-3, p. 2-12].

5) The brigade FSO wargames FS COAs for support of mobility operations. [AN].

6) The brigade S4 wargames CSS COAs for support of mobility operations. [FM 5-71-3, p. 3-4].

7) The brigade S2 wargames enemy-countermobility COAs. [FM 5-71-3, p. 3-4].

f. The brigade staff compares COAs. [AN].

1) For each COA, the ABE is prepared to inform the brigade commander on the following: [AN].

a) The recommended brigade concept/scheme to support the COA. [AN].

b) Which COA is not supportable by engineers. [AN].

c) Where risk must be accepted. [FM 5-100 (Final Draft), p. B-10].

d) What additional assets are needed to avoid risk. [FM 5-100 (Final Draft), p. B-10].

e) Where those assets may be obtained. [FM 5-100 (Final Draft), p. B-10].

2) The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].

g. The brigade commander announces his decision. [AN].

1) The brigade commander approves the mobility plan. [AN].

2) The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include: [AN].

a) The TO for the brigade maneuver units and engineers. [AN].

b) Requests to division for additional engineer and mobility assets. [AN].

c) Additions or changes to the plan's branches and sequels for brigade breaches and river crossings. [AN].

d) The brigade's FS plan in support of mobility operations. [AN].

e) The brigade's use of obscurants in support of mobility operations. [AN].

f) The brigade's logistics plan in support of mobility operations. [AN].

3) The ABE informs the engineer battalion S3 of the brigade commander's

decision. [AN].

h. The brigade staff prepares and publishes a FRAGO. [AN].

1) The brigade S3 plans for actions at an obstacle (obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].

a) The Bn TFs are task-organized with engineers to overcome obstacles in-stride. [FM 71-123, p. 3-34].

b) Missions are assigned to subordinate elements for a brigade deliberate breach or river crossing (as part of a division river crossing). [AN].

2) The brigade FSO plans FS for mobility operations. [AN].

3) The brigade CHEMA plans for NBC operations in support of a river crossing or a brigade breach. [AN].

4) The ABE prepares the engineer support subparagraph. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

5) The ABE updates the engineer annex. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

EXECUTION Tasks and Task Elements

16. The brigade staff evaluates and updates staff products.

a. The brigade S2 and S2 section evaluate and update staff products: [AN].

1) The brigade S2 and S2 section evaluate information and intelligence. [AN].

a) Enemy capabilities and dispositions are verified (e.g., the location of positions, obstacles, contaminated areas, etc.). [AN].

b) Enemy strengths and weakness are determined to confirm the best breach or crossing site. [AN].

c) Probable enemy COAs countering breaches or river crossings are confirmed. [AN].

d) The FRAGOs to maneuver plans from subordinate units are evaluated to determine the need to change the brigade R&S plan. [AN].

2) The brigade S2 and S2 section update information and intelligence. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

a) Enemy countermobility capabilities and dispositions are annotated on overlays (e.g., location of positions, obstacles, contaminated areas, reserves). [ARTEP 71-3-MTP, Task: 71-3-2006/3].

b) New information is integrated into the enemy situation template, MCOO, event template, R&S plan, and intelligence estimate. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

b. The brigade S3 and S3 section evaluate and update staff products: [AN].

1) The brigade S3 and S3 section evaluate mobility data and intelligence information. [AN].

a) The combat strength of the brigade, availability and capability of mobility assets, and the current situation are evaluated to determine the practicability of the brigade's plan. [AN].

b) Changes to subordinate units' plans are evaluated to ensure synchronization with the brigade breach or crossing plan. [AN].

c) The Bn TF and engineer battalion commanders' recommended changes and requests for additional resources to the mobility plan are evaluated. [AN].

d) Positions and activities of the Bn TFs are assessed against the brigade DST and synchronization matrix. [AN].

e) Mobility information from the brigade S2 and brigade elements is used to verify, analyze, and identify necessary changes in the mobility plan: [AN].

(1) Routes. [AN].

(2) Assault positions. [AN].

(3) SBF positions. [AN].

(4) Crossing/breaching sites. [AN].

(5) Staging areas. [AN].

(6) The brigade task-organization. [AN].

(7) The brigade scheme of maneuver. [AN].

(8) Bn TF missions. [AN].

f) Unit status reports are evaluated to determine if adequate mobility systems are available to accomplish the mobility plan. [AN].

g) The SPOTREPs are evaluated to confirm the SITEMP and other intelligence products. [AN].

h) The updated SITEMP is evaluated to identify necessary changes to the mobility plan. [AN].

i) The execution and results of the mobility plan are evaluated against the brigade DST and synchronization matrix to identify necessary changes. [AN].

j) The execution and results of the FS plan are monitored and evaluated to ensure that fires are providing the desired results. [AN].

k) The execution and results of the smoke plan are evaluated to ensure that required obscuration is being provided by the smoke unit and other assets. [AN].

1) The execution of the logistics plan and the brigade supply status are evaluated to ensure that the required logistical support is available to support the mobility plan. [AN].

2) The brigade S3 and S3 section update the brigade plan, operations estimate, and other C2 products using newly evaluated information. [AN].

a) Operations estimate. [AN].

b) The DST. [AN].

c) Execution matrix. [AN].

d) Plans. [AN].

e) Overlays. [AN].

f) Unit and equipment status boards. [AN].

g) Decision graphics (e.g., combined combat effectiveness and Bn TF composition graphics). [FM 101-5-1, p. 3-4].

c. The brigade FSO and FSE evaluate and update staff products: [AN].

1) The brigade FSO and FSE evaluate FS information that supports overcoming obstacles. [AN].

a) The execution of Bn TF FS plans are compared and deconflicted with the brigade FS plan for a brigade breach or river crossing. [AN].

b) The effects of FS are evaluated against what was desired. [AN].

c) New enemy information from the brigade S2 and DIVARTY sources is evaluated. [AN].

d) The amount of FS resources available to support a breach or river crossing is evaluated. [AN].

e) Shortcomings in the ability of artillery to deliver indirect fires, including SCATMINE and obscuration fires, are identified. [AN].

f) The FS asset positioning and displacement plans are evaluated to ensure that the required FS is provided for a brigade breach and/or river crossing. [AN].

g) Weather conditions are evaluated for their effects on FS. [AN].

2) The brigade FSO and FSE update and integrate FS information into the: [AN].

a) FS estimate. [AN].

b) FS plan. [AN].

c) FS overlay. [AN].

- d) FS execution matrix. [AN].
- d. The brigade CHEMA and NBC section evaluate staff products: [AN].
 - 1) The brigade CHEMA and NBC section evaluate information on smoke missions during brigade mobility operations. [AN].
 - a) The supply and matériel readiness of the smoke unit are evaluated for the current mission, shortcomings are identified, and changes to the mission are determined. [AN].
 - b) Weather conditions and the forecast are evaluated to determine changes required in the number and positioning of smoke-generating equipment, munitions (e.g., smoke pots), and fires. [AN].
 - c) Changes in the FS capability to fire smoke are evaluated to determine needed changes in the number and positioning of smoke-generating equipment and munitions. [AN].
 - d) Changes to the locations of smoke generators are assessed to ensure that terrain requirements are deconflicted. [AN].
 - 2) The brigade CHEMA and NBC section integrate new information into the NBC plan. [AN].
- e. The ABE and ABE section evaluate and update staff products: [AN].
 - 1) The ABE and ABE section evaluate information for overcoming obstacles. [AN].
 - a) Progress on engineer mobility tasks is compared to timelines and required results and shortcomings are identified. [AN].
 - b) Locations and activities of engineer units are assessed against where they should be located according to the plan. [AN].
 - c) Reports on engineer units' material readiness are evaluated to determine if engineer units can complete their missions in support of the breach or river crossing. [AN].
 - d) Obstacle and enemy information from the brigade and engineer battalion S2s are analyzed for their effects on engineer missions and the brigade's ability to breach or cross an obstacle. [AN].
 - e) The ability of artillery to deliver SCATMINE and obscuration fires is evaluated (with the brigade FSO), and shortcomings are identified. [AN].
 - 2) The ABE and ABE section update engineer information. [AN].
 - a) The ABE and ABE section update priorities, schedules for the engineer effort, and the engineer estimate to reflect the current situation. [AN].
 - b) The ABE and ABE section update the EBA and engineer estimate. [AN].
 - (1) The ABE and ABE section update the factors of OCOKA. [AN].

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- (2) The ABE and ABE section update the estimate of enemy countermobility capability. [AN].
 - (3) The ABE and ABE section assist the brigade S2 and engineer battalion S2 in updating the MCOO. [AN].
 - (4) The ABE and ABE section update Terra Base digital information. [AN].
 - (5) The ABE and ABE section update the engineer logistical status. [AN].
- f. The brigade S4 and S4 section evaluate and update staff products: [AN].
- 1) The brigade S4 and S4 section evaluate information for providing logistical support. [AN].
 - a) The brigade S4 and S4 section determine if CSS assets are properly positioned to support the mission. [ARTEP 71-3-MTP, Task: 71-3-4001/5].
 - b) The brigade S4 and S4 section evaluate recovered mobility assets to determine if they can be repaired and returned to duty to support the brigade mission. [AN].
 - c) The brigade S4 and S4 section evaluate the filling of critical brigade requests for Class V demolitions. [AN].
 - (1) The probability of the requested demolitions arriving in time for the missions. [AN].
 - (2) Alternate sources for obtaining necessary supplies. [AN].
 - 2) The brigade S4 and S4 section integrate new CSS information into the CSS plan. [AN].

17. The brigade staff disseminates information and coordinates actions for overcoming obstacles.

- a. The brigade XO coordinates the actions of the brigade staff in supporting the execution and updating of plans. [ARTEP 71-3-MTP, Task: 71-3-0001/6].
- b. The brigade S2 section disseminates mobility intelligence data gathered from reports by reconnaissance elements and Bn TFs. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - 1) The brigade S2 ensures that the updated R&S plan, PIR, SITEMP, event template, and MCOO are posted in the brigade CPs and passed to subordinate battalion S2s. [ARTEP 71-3-MTP, Task: 71-3-2006/3].
 - 2) The brigade S2 ensures that the brigade S3, brigade FSE, and other brigade staff sections receive copies of pertinent combat information reports. [ARTEP 71-3-MTP, Task: 71-3-2006/6].
 - 3) The brigade S2 keeps the brigade commander and brigade S3 informed of his

analysis of enemy actions and probable future actions based on the gathered information (e.g., enemy reserve commitment, chemical weapon use on the brigade in constricted terrain, and SCATMINE use). [AN].

c. The brigade S3 section disseminates mobility information and coordinates the brigade's actions. [AN].

1) The brigade S3 section recommends changes to the brigade scheme of maneuver and/or task-organization to overcome obstacles to the brigade commander. [AN].

2) The brigade S3 section sends requests for additional mobility resources to the division G3. [AN].

3) The brigade S3 section issues FRAGOs. [AN].

4) The brigade S3 section disseminates the updated operations estimate, DST, execution matrix, overlays, and OPORD/FRAGO as required to the brigade staff and subordinate battalions. [AN].

5) The brigade S3 section coordinates changes in the mobility plan with: [AN].

a) The brigade FSO for the delivery of fires. [AN].

b) The brigade CHEMO for smoke missions support. [AN].

c) The engineer battalion commander or ABE for engineer support. [AN].

d) The Bn TF S3s for the scheme of maneuver. [AN].

6) The brigade S3 section ensures that coordination of all BOS for mobility missions is accomplished within the brigade staff and between the brigade staff and the Bn TF staffs. [AN].

d. The brigade FSO coordinates and synchronizes the brigade's indirect fires and disseminates information during mobility operations: [AN].

1) The brigade FSO disseminates the updated FS plan and overlay as required to the brigade staff and subordinate battalions. [AN].

2) The brigade FSO synchronizes brigade FS with that of Bn TF FSEs fires. [ARTEP 71-3-MTP, Task: 71-3-9002/4].

3) The brigade FSO coordinates with the ABE for the integration of artillery-delivered SCATMINES. [ARTEP 71-3-MTP, Task: 71-3-9002/3].

4) The brigade FSO coordinates with the brigade S3 for the delivery of fires to support mobility operations. [ARTEP 71-3-MTP, Task: 71-3-9002/3].

5) The brigade FSO coordinates with the brigade CHEMO for changes in the delivery of artillery and mortar fired smoke. [AN].

e. The brigade CHEMO coordinates smoke operations and passes information supporting mobility operations. [AN].

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- 1) The brigade CHEMA passes information on changes to the smoke unit. [AN].
 - a) Weather forecast updates. [AN].
 - b) Changes to the smoke mission (e.g., location of the smoke objective, smoke density, duration of the smoke, changes to artillery and mortar delivered smoke). [AN].
 - c) Information on resupply. [AN].
- 2) The brigade CHEMA coordinates with the brigade S3 for changes to smoke missions and locations of smoke generators. [AN].
- 3) The brigade CHEMA coordinates with the brigade FSO for smoke mission changes. [AN].
- 4) The brigade CHEMA coordinates with the ABE and the brigade breach force CHEMA for the use of smoke munitions in support of a breach. [AN].
- f. The ABE coordinates engineer mobility operations and passes information from the brigade main CP: [AN].
 - 1) The ABE passes engineer taskings to the engineer battalion on behalf of the brigade commander. [FM 5-100, p. 30].
 - 2) The ABE passes mobility information. [AN].
 - 3) The ABE reports the obstacle-plan status (e.g., obstacles completed, work in progress, completion times) to the brigade commander and brigade S3. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 4) The ABE forwards reports on enemy minefield locations to the brigade S3 and S2. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 5) The ABE reports to the division the locations of obstacles/breaches, both enemy and friendly, that impact on friendly maneuver. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 6) The ABE passes reports from reconnaissance and engineer units on routes, MSRs, bypassed obstacles, and minefields to the brigade S3 section. [AN].
 - 7) The ABE keeps the brigade S3 and brigade commander informed on the progress made by engineers in overcoming obstacles. [FM 5-100, p. 34].
 - 8) The ABE coordinates with the brigade S4 to ensure that Class IV and Class V obstacle and demolition materials are positioned forward. [ARTEP 71-3-MTP, Task: 71-3-8005/2].
 - 9) The ABE checks with attached engineer units (e.g., corps' bridging company) to ensure that they have all the matériel and assets needed for their mission. [FM 71-123, p. 6-26].
- g. The brigade S4 coordinates logistical support and updates logistical support for mobility operations: [AN].
 - 1) The brigade S4 requests transport of engineer supplies (Class IV and Class V) to engineer units. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].

2) The brigade S4 coordinates with the S4s of units conducting a breach or crossing to ensure that recovery vehicles and emergency engineer supplies are near the obstacle or crossing site. [FM 71-123, p. 6-37].

3) The brigade S4 coordinates with the ABE to identify sustainment measures and to ensure that sustainment measures for the engineer battalion are executed. [ARTEP 71-3-MTP, Task: 71-3-8005/2; FM 5-71-100, p. 3-21].

18. The brigade commander and brigade staff change the operation or plan.

a. The brigade commander assesses his estimate of the situation to ascertain the validity of the current plan and determines: [AN].

1) Whether the plan can be accomplished without any changes. [AN].

2) Whether the plan's scheme of maneuver or mobility plan requires changes. [AN].

3) Which decision-making process to use in changing the current plan. [AN].

a) The DDMP. (See tasks 2 to 12 in Planning.) [AN].

b) The time-constrained decision-making process. [AN].

b. The brigade commander gives guidance to the brigade staff for the revision of the mobility plan after developing a new mission concept. This information includes: [AN].

1) The brigade commander's restated mission, if changed. [FM 5-71-3, p. 2-19].

2) The brigade commander's intent and end state, if changed. [FM 5-71-3, p. 2-19].

3) The COAs that the brigade commander wants considered. [FM 5-71-3, p. 2-19].

a) Engineer missions. [AN].

b) The TO of engineer units and the brigade's mobility assets. [FM 5-71-3, p. 2-19].

(1) Engineer battalion command and support relationships: [AN].

(a) Engineer assets that will organize with the brigade's Bn TFs. [AN].

(b) Engineer assets that will remain under brigade control. [AN].

(c) Engineer command and support relationships for specific tasks, events, or time. [FM 5-71-3, p. 2-19].

(d) Engineer and other mobility assets that will be under the engineer battalion's control. [AN].

(2) Allocation of Bn TF organic mobility assets. [AN].

- c) Priorities of engineer support. [FM 5-71-3, p. 2-19].
- d) The scheme of maneuver for overcoming obstacles: [AN].
 - (1) The method the commander desires to use to breach obstacles or cross a river (e.g., in-stride or deliberate). [AN].
 - (2) The location(s) the commander wants considered to breach obstacles or cross a river. [AN].
- 4) Logistics priorities. [FM 5-100, p. 39].
 - a) The supply and transport of engineer supplies. [FM 5-100, p. 39].
 - b) Maintenance and repair for the engineer battalion and other brigade pieces of mobility equipment. [FM 5-100, p. 39].
- 5) The IRs. [FM 5-71-3, p. 2-19].
- 6) The brigade commander's CCIR. [FM 5-71-3, p. 2-19].
- 7) The brigade commander's risk assessment. [FM 5-71-3, p. 2-19].
- 8) The ABE sends the brigade commander's guidance to the engineer battalion S3. [AN].
- c. The ABE analyzes the new mission concept to determine mobility tasks and requirements. [AN].
 - 1) The ABE determines the following information from brigade commander's guidance: [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1; ARTEP 5-145-MTP, Task: 05-1-0002/1].
 - a) Specified engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - b) Implied engineer tasks. [FM 5-71-3, p. 2-11; ARTEP 71-3-MTP, Task: 71-3-8001/1].
 - c) Engineer task-organization. [FM 5-71-3, p. 2-11].
 - d) Limitations: [FM 5-71-3, p. 2-11].
 - (1) Restrictions. [FM 5-71-3, p. 2-11].
 - (2) Constraints. [FM 5-71-3, p. 2-11].
 - e) Identification of essential engineer tasks in the division order. [FM 5-71-3, p. 2-11].
 - 2) The ABE identifies the essential engineer tasks that support the brigade's essential tasks. [FM 5-100, p. 23].

3) The ABE coordinates with the brigade S3 to incorporate engineer essential tasks into the brigade's restated mission. [FM 5-100, p. 23].

d. The brigade staff develops new mobility COAs. [AN].

1) The brigade S3 and brigade staff develop COAs for maneuver. [AN].

a) The brigade S3 and brigade staff determine required changes to breaching, gap crossing, or river crossing operations. [FM 5-71-3, p. 3-4].

b) The brigade S3 and brigade staff allocate forces to accomplish the mission (brigade task-organization). [FM 5-71-3, p. 3-4].

2) The ABE develops COAs for engineer support of brigade COAs. [FM 5-71-3, p. 2-11].

3) The brigade FSO develops FS COAs that support mobility operations. [FM 71-3, p. 6-41; AN].

4) The brigade CHEMA develops COAs that support mobility operations [AN].

5) The brigade S4 and brigade S1 develop CSS COAs that support mobility operations [FM 5-71-3, p. 3-4].

e. The brigade staff analyzes COAs (wargame). [AN].

1) The brigade S3 and brigade staff prepare a scheme of maneuver. [AN].

2) The brigade S3 and brigade staff organize the brigade for mobility operations. [AN].

3) The ABE wargames each engineer COA against each anticipated enemy COA. [FM 5-100, p. 106].

4) The ABE determines if the scheme of engineer operations supports the COA and the maneuver plan. [FM 5-71-3, p. 2-12].

5) The brigade FSO wargames FS COAs for the support of mobility operations. [AN].

6) The brigade S4 wargames CSS COAs for the support of mobility operations. [FM 5-71-3, p. 3-4].

7) The brigade S2 wargames enemy countermobility COAs. [FM 5-71-3, p. 3-4].

f. The brigade staff compares COAs. [AN].

1) For each COA the ABE is prepared to inform the brigade commander of the following: [AN].

a) The recommended brigade concept/scheme to support the COA. [AN].

b) Which COA is not supportable by engineers. [AN].

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- c) Where risk must be accepted. [FM 5-100 (Final Draft), p. B-10].
- d) What additional assets are needed to avoid risk. [FM 5-100 (Final Draft), p. B-10].
- e) Where those assets may be obtained. [FM 5-100 (Final Draft), p. B-10].
- 2) The brigade staff recommends a COA to the brigade commander. [FM 5-71-3, p. 2-12].
- g. The brigade commander announces his decision. [AN].
 - 1) The brigade commander approves the mobility plan. [AN].
 - 2) The brigade commander makes changes to the plan, and/or determines whether further development of the mobility plan is necessary. Possible changes include: [AN].
 - a) The task-organization for the brigade maneuver units and engineers. [AN].
 - b) Requests to division for additional engineer and mobility assets. [AN].
 - c) Additions or changes to the plan's branches and sequels for brigade breaches and river crossings. [AN].
 - d) The brigade's FS plan in support of mobility operations. [AN].
 - e) The brigade's use of obscurants in support of mobility operations. [AN].
 - f) The brigade's logistics plan in support of mobility operations. [AN].
 - 3) The ABE informs the engineer battalion S3 of the brigade commander's decision. [AN].
- h. The brigade staff prepares and publishes a FRAGO. [AN].
 - 1) The brigade S3 plans for actions at an obstacle (obstacle system, gap, or river). [FM 101-5 (Final Draft), p. H-56].
 - a) The Bn TFs are task-organized with engineers to overcome obstacles in-stride. [FM 71-123, p. 3-34].
 - b) Missions are assigned to subordinate elements for a brigade deliberate breach or river crossing (as part of a division river crossing). [AN].
 - 2) The brigade FSO plans FS for mobility operations. [AN].
 - 3) The brigade CHEMA plans for NBC operations in support of a river crossing or a brigade breach. [AN].
 - 4) The ABE prepares the engineer support subparagraph. [ARTEP 71-3-MTP, Task: 71-3-3002/1].
 - 5) The ABE updates the engineer annex. [ARTEP 71-3-MTP, Task: 71-3-3002/1].

Outcome 2

The brigade elements are able to pass by, over, or through any obstacles to movement.

PLANNING Tasks and Task Elements

1. The brigade commander and brigade staff monitor and direct mobility operations during the planning phase.

a. The brigade commander and brigade S3 direct and monitor mobility operations in the brigade AO. [AN].

1) The brigade commander and brigade S3 monitor the progress of Bn TF in overcoming obstacles, both in-stride and deliberate. [AN].

2) The brigade commander and brigade S3 monitor the progress of the brigade's engineer units in supporting divisional, brigade, and Bn TF mobility operations in the brigade AO. [AN].

3) The brigade commander and brigade S3 direct reallocation of mobility assets within the brigade to assist Bn TFs in deliberate and in-stride breaches and gap crossings. [AN].

4) The brigade commander and brigade S3 direct reallocation of CS and CSS within the brigade to assist Bn TFs in deliberate and in-stride breaches and gap crossings. [AN].

5) The brigade commander and brigade S3 direct the brigade to take a tactical pause to plan and prepare for a brigade deliberate breach of an obstacle system, gap crossing, or river crossing. [AN].

b. The ABE monitors mobility operations: [AN].

1) The ABE monitors engineer units and their activities in the brigade sector (see Tasks 14 and 20 below). [AN].

2) The ABE updates information that supports engineer activities in the brigade sector (see Tasks 15 and 21 below). [AN].

3) The ABE disseminates information and coordinates engineer actions in the brigade sector (see Tasks 16 and 22 below). [AN].

4) The ABE refines the current mobility plan to support on-going operations (see Task 18 below). [AN].

c. The engineer battalion commander and engineer battalion staff direct and monitor engineer operations in the brigade AO. [ARTEP 5-145-MTP, Task: 05-1-0018].

1) The engineer battalion staff establishes and maintains C2 facilities. [ARTEP 5-145-MTP, Task: 05-1-0018/1].

2) The engineer battalion staff monitors engineer companies' status and mobility

task progress while they are attached to or under the OPCON of Bn TFs. [ARTEP 5-145-MTP, Task: 05-1-0018/2].

3) The engineer battalion maintains liaison with the brigade main CP and adjacent engineer units. [ARTEP 5-145-MTP, Task: 05-1-0018/1].

4) The engineer battalion commander and engineer battalion staff supervise the operations of subordinate elements. [ARTEP 5-145-MTP, Task: 05-1-0018/3].

d. Engineer units supporting the brigade are sustained. [AN].

1) Supply. [AN].

a) The brigade S4 monitors the supply levels (all classes) of the engineer battalion which is attached, OPCON, or in DS of the brigade. [AN].

b) The brigade S4 tracks the request and delivery of equipment, supplies, and demolitions used to overcome obstacles to the Bn TFs and engineer battalion. [AN].

2) The brigade S4 monitors the recovery and repair of engineer mobility equipment and Bn TF mobility equipment. [AN].

3) The brigade S4 monitors and directs transportation operations to move mobility equipment and supplies to locations where they are needed. [AN].

PREPARATION Tasks and Task Elements

2. The brigade conducts reconnaissance.

a. The brigade commander and brigade staff reconnoiter the brigade's AO, routes, and axes to gather information. [FM 71-123, p. 2-49].

1) The brigade commander and brigade staff reconnoiter critical areas along the brigade's axes and routes. [FM 71-123, p. 2-49].

2) The brigade commander and brigade staff reconnoiter the brigade AO to estimate the effects of terrain and obstacles on maneuver. [FM 71-123, p. 2-49].

3) The brigade commander and brigade staff reconnoiter breach and river crossing sites (if possible). [AN].

a) The brigade commander and brigade staff view the breach or crossing site from an enemy or a neutral vantage point. [AN].

b) The brigade commander and brigade staff reconnoiter terrain at the breach or crossing site to evaluate the brigade's scheme of maneuver. [AN].

c) The brigade commander and brigade staff reconnoiter enemy avenues of approach to the breach or crossing site to evaluate the enemy's possible actions. [AN].

d) The brigade commander and brigade staff reconnoiter areas where the brigade will maneuver or mass fires to counter enemy actions. [AN].

4) The brigade commander or a designated brigade staff officer reconnoiters areas where the enemy or the brigade can use SCATMINES. [AN].

b. Brigade units perform an engineer reconnaissance, reporting the condition, location, and bypasses of: [AN].

1) Special features and structures in the area: [AN].

a) Natural barriers to movement other than water. [AN].

(1) Location. [AN].

(2) Dimensions. [AN].

(3) Description. [AN].

(4) Bypasses. [AN].

b) Water barriers (see Task 13c). [AN].

2) Bridges. [AN].

a) Type and classification. [AN].

b) Length and width. [AN].

c) Location. [AN].

d) Condition. [AN].

e) Bypasses. [AN].

3) Tunnels and underpasses. [AN].

a) Length and width. [FM 5-34, p. 5-14].

b) Clearance. [FM 5-34, p. 5-14].

c) Location. [AN].

d) Bypasses. [AN].

4) Roads and trails. [AN].

a) Surface material. [FM 5-34, p. 5-3].

b) Foundation. [FM 5-34, p. 5-3].

c) Width. [FM 5-34, p. 5-3].

d) Drainage. [FM 5-34, p. 5-3].

e) Surface conditions. [FM 5-34, p. 5-3].

- f) Grades and curves. [FM 5-34, p. 5-3].
 - g) Drive-off capability. [AN].
 - h) Concealment. [AN].
- 5) Terrain features. [AN].
- c. Brigade units perform a river and gap crossing site reconnaissance. [AN].
 - 1) Existing bridges. [AN].
 - 2) Identification or confirmation of crossing sites. [AN].
 - 3) Enemy information from both sides of the crossing sites. [AN].
 - 4) Terrain information from both sides of the crossing sites. [AN].
 - 5) Location of suitable access and egress routes. [AN].
 - 6) Results of a route reconnaissance performed on routes in the brigade crossing area. [AN].
 - 7) River/gap information: [AN].
 - a) Width of stream bed. [FM 5-34, p. 5-15].
 - b) Actual width of water. [FM 5-34, p. 5-15].
 - c) Depth. [FM 5-34, p. 5-15].
 - d) Bottom conditions and profile. [AN].
 - e) Bank height and slope. [FM 5-34, p. 5-15].
 - f) Soil conditions and stability. [FM 5-34, p. 5-16].
 - g) Drainage. [FM 5-34, p. 5-16].
 - h) Obstructions (e.g., sandbars, floating debris). [FM 5-34, p. 5-16].
 - i) Reinforcing obstacles. [AN].
 - j) Water velocity. [AN].
 - 8) Crossing site information: [AN].
 - a) Covered and concealed assembly areas. [AN].
 - b) Fighting positions for supporting weapons. [AN].
 - c) Fighting positions on the far side. [AN].
 - d) Positions that give the enemy observation and fields of fire on the far and

near side. [AN].

d. Brigade units conduct an enemy obstacle reconnaissance and collect information. [AN].

- 1) Obstacle bypass routes or gaps in the obstacle system. [AN].
- 2) Specific types of obstacles found, including their locations, orientations, and dimensions. [AN].
- 3) Composition and construction of obstacles. [AN].
- 4) Composition, size, and location of enemy forces overwatching the obstacles. [AN].
- 5) Covered and concealed routes and approaches to the obstacle. [AN].
- 6) Best locations to breach the obstacle. [AN].
- 7) Assault positions for brigade breach and assault forces. [AN].
- 8) The SBF position for the brigade support force. [AN].

3. The brigade staff collects information for overcoming obstacles.

a. The brigade S2 and S2 section collect information on obstacles for updating intelligence products and answering CCIR, PIR, and IR. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

- 1) An INTSUM from the division G2. [AN].
- 2) Information from division and adjacent unit staffs which answer previously submitted information queries. [AN].
- 3) The SPOTREPs from subordinate reconnaissance elements performing brigade R&S operations. [AN].
- 4) The SPOTREPs from Bn TF S2s. [AN].
- 5) Information from the brigade staff and LO acquired from their counterparts in higher, adjacent, and parent units. [AN].

b. The brigade S3 and S3 section collect information for mobility operations. [AN].

1) Reports from subordinate units' on link-up and completion of task-organization. [FM 71-3, p. 6-44].

2) Subordinate units' OPORDs. [AN].

3) Reports from the Bn TFs and engineer battalion. [ARTEP 71-3-MTP, Task: 71-3-3006/1].

a) Strength reports (e.g., number of mobility assets ready). [ARTEP 71-3-

MTP, Task: 71-3-3003/3].

- (1) Maneuver unit mechanical breaching equipment status. [AN].
- (2) Engineer equipment status. [AN].
- (3) Engineer bridging unit status. [AN].
- (4) The FA status. [AN].
- (5) Smoke unit status. [AN].

b) The status of the completion of preparation tasks. [ARTEP 71-3-MTP, Task: 71-3-3003/3].

c) SPOTREPs on enemy obstacles found by Bn TF reconnaissance elements. [AN].

4) Requests for resources from subordinate units. [AN].

5) Recommendations from subordinate commanders for changes to their assigned missions. [AN].

6) Updated SITEMP, event template, and MCOO from the brigade S2. [ARTEP 71-3-MTP, Task: 71-3-3003/2].

7) Information on brigade routes, staging areas, assault positions, SBF positions, and the best sites for breaching or crossing the obstacle. [ARTEP 71-3-MTP, Task: 71-3-3003/3].

8) Recommendations and changes for the FS plan from the brigade FSO. [ARTEP 71-3-MTP, Task: 71-3-3005/1].

9) Information from the ABE: [AN].

a) Updated EBA. [AN].

b) Recommendations and changes in the engineer battalion's mobility/countermobility missions. [AN].

c) Reports of enemy minefield locations. [AN].

d) Information from coordination visit(s) to the stationary force engineer for a passage of lines. [AN].

10) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-3003/3].

c. The brigade FSO and FSE collect information on FS to support the mobility plan. [AN].

1) Intelligence information, acquired from the DIVARTY S3 and the DS artillery battalion staff, on the locations of enemy units and FS assets that could influence the breach or crossing. [AN].

- 2) Artillery status from the DS FA battalion. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - a) Location and status of firing batteries. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - b) Ammunition types and quantities. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - c) Availability of counterbattery radar. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
- 3) The FS plans from Bn TF FSOs. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
- 4) Refinements to SCATMINE employment from the ABE. [ARTEP 71-3-MTP, Task: 71-3-9002/3].
- 5) Status reports on positioning and preparation status of observers. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
- 6) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
- d. The ABE and ABE section collect information on engineer preparations for overcoming obstacles. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 1) The ABE and ABE section monitor engineer operations and preparation activities in the brigade area. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - a) Availability of engineer equipment. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - b) Availability of Bn TF rollers and plows. [AN].
 - c) Execution of the brigade obstacle plan in support of the brigade mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - d) Construction of combat routes and trails. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - e) Clearing and repairing of routes in support of tactical and logistical plans. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 2) The TO status of engineer assets. [AN].
 - 3) Reports of enemy minefield locations. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 4) Intelligence information affecting mobility operations from the engineer battalion S2. [AN].
 - 5) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

- e. The brigade CHEMO and NBC section collect information on preparations to support the mobility plan. [AN].
 - 1) The brigade CHEMO and NBC section monitor the supporting smoke unit's status: [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - a) Completion of the task-organization and implementation of command and support relationships. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - b) Status of personnel, equipment, and POL for creating smoke. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - c) Location of the smoke unit. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - 2) Weather forecasts from the brigade S2 section. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - 3) Changes to projected locations of the smoke unit from the support force commander. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
- f. The brigade S4 and S4 section collect information on CSS preparations for overcoming obstacles. [AN].
 - 1) The brigade S4 and S4 section monitor the delivery of Class V demolitions for mobility operations. [AN].
 - 2) The brigade S4 and S4 section monitor the status of maintenance and servicing of mobility equipment of Bn TFs and engineer units. [AN].
 - 3) The brigade S4 and S4 section collect requests for additional Class IV and V supplies for the engineer units from the engineer battalion S4 and Bn TF S4s. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].
 - 4) The brigade S4 and S4 section monitor the delivery of Class III (fog oil) and V (smoke pots) to brigade units. [AN].
- 4. The brigade conducts rehearsals to overcome obstacles.**
 - a. The brigade rehearses the negotiation of a friendly obstacle system. [FM 71-3, p. 6-17].
 - 1) The brigade engineer rehearses link up with the stationary force engineer at the contact point and the final coordination for a passage of lines. [FM 71-3, p. 6-17].
 - 2) The Bn TF engineers and other Bn TF units rehearse proofing lanes cleared through friendly obstacle systems. [FM 71-123, p. 6-8].
 - b. Brigade elements rehearse encountering previously undetected obstacles (e.g., a destroyed bridge, SCATMINES). [AN].
 - 1) The Bn TFs rehearse in-stride breaches. [AN].
 - 2) A Bn TF which is unable to breach in-stride or bypass an obstacle rehearses battle drills, and plans for a Bn TF deliberate breach. (See Bn TF CCF 21.) [AN].

3) The brigade rehearses battle drills for a brigade deliberate breach. [AN].

c. The brigade commander directs and leads the brigade rehearsals for a brigade deliberate breach of an obstacle system. [AN].

1) Reconnaissance elements reconnoiter and report information on the breach sites and bypasses. [FM 71-123, p. 6-37].

2) The brigade S2 collects simulated reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [FM 71-123, p. 6-37].

c) Location of enemy FS assets. [FM 71-123, p. 6-37].

d) New obstacles. [FM 71-123, p. 6-37].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 rehearse synchronizing the brigade's breaching operations: [AN].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan. [FM 71-3, p. 4-41].

(1) The brigade commander and brigade S3 issue FRAGOs as necessary. [FM 71-3, p. 4-41].

(2) The brigade commander and brigade S3 note changes for updating the brigade OPORD and C2 products. [CALL Newsletter, No. 91-1, p. 1].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces with the: [AN].

(1) DST. [AN].

(2) Synchronization matrix. [AN].

(3) Execution matrix. [AN].

(4) FS execution matrix. [AN].

4) The brigade FSO rehearses directing and coordinating fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The brigade support force commander rehearses maneuvering the support force into its overwatch positions. [FM 71-3, p. 4-41].

a) The brigade support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) The brigade support force FSO calls for and adjusts smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(2) The brigade support force FSO maintains obscurity. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(3) The brigade support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

b) The brigade support force commander directs the brigade support force in suppressing the enemy with direct fires. [AN].

c) The smoke unit moves to a position and begins smoke operations in support of the breach. [AN].

6) The brigade breach force commander rehearses maneuvering the brigade breaching force into its assault positions. [FM 71-3, p. 4-41].

7) The brigade assault force commander rehearses maneuvering the brigade assault force into its assault positions. [FM 71-3, p. 4-41].

a) The brigade assault force remains in a covered and concealed position. [FM 71-3, p. 4-41].

b) The brigade assault force occupies an SBF position and its commander directs fires to suppress or destroy enemy forces. [FM 71-3, p. 4-41].

8) The brigade breach force commander rehearses maneuvering the breaching element to the breach locations. [FM 71-3, p. 4-41].

a) The brigade breach force commander directs the engineers and Bn TF mobility assets in the reduction of the obstacles and the creation of lanes. [FM 71-3, p. 4-41].

b) The brigade breach force commander directs the positioning of smoke pots to obscure the breach. [FM 71-3, p. 4-41].

c) The brigade breach force penetrates the obstacle system and establishes a lodgement area on the far side by establishing a hasty defense. [FM 90-13-1, pp. 2-3 to 2-4].

d) The brigade breach force marks lanes through the obstacle system. [FM 90-13-1, pp. 2-3 to 2-4].

e) The brigade breach force proofs the lanes. [AN].

9) The brigade assault force rehearses the movement of the assault force through the lanes. [AN].

a) The brigade assault force commander directs the support force to shift direct fires. [AN].

b) The brigade assault force receives priority of indirect fires. [AN].

c) The brigade assault force commander directs the brigade assault force FSO to lift and shift indirect fires. [AN].

d) The brigade assault force rehearses the final assault to seize the objective, continue the attack (finds and attacks the enemy reserve), or establish a hasty defense. [AN].

d. The brigade commander directs and leads the brigade rehearsals for a deliberate river crossing. [AN].

1) Reconnaissance elements reconnoiter the brigade crossing sites. [FM 71-123, p. 6-37].

2) The brigade S2 collects simulated reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [FM 71-123, p. 6-37].

c) Location of enemy FS assets. [FM 71-123, p. 6-37].

d) New in-the-water, near-shore, and far-shore obstacles. [FM 71-123, p. 6-37].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 rehearse synchronizing the brigade's river crossing operations. [FM 71-3, p. 4-41].

a) The brigade commander and brigade S3 determine required adjustments to the brigade river crossing plan. [FM 71-3, p. 4-41].

(1) The brigade commander and brigade S3 issue FRAGOs as necessary. [FM 71-3, p. 4-41].

- (2) The brigade commander and brigade S3 note changes for updating the brigade OPORD and C2 products. [LL-CALL Newsletter, No. 91-1, p. 1].
- b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].
- c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].
- d) The brigade commander and brigade S3 synchronize the maneuver, fires, and crossing of the river using the: [AN].
 - (1) DST. [AN].
 - (2) Synchronization matrix. [AN].
 - (3) Execution matrix. [AN].
 - (4) FS execution matrix. [AN].
- 4) The brigade FSO rehearses directing and coordinating fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].
 - a) The brigade FSO directs the attack of enemy reserves with indirect fires. [AN].
 - b) The brigade FSO coordinates counterbattery fires in the brigade sector. [AN].
- 5) The brigade assault force commander rehearses movement to the assault position and preparation of vehicles for the river crossing. [FM 71-3, p. 6-45].
 - a) Vehicle crews practice preparing vehicles for swimming or fording the river. [AN].
 - b) Vehicles are separated into and positioned as raft loads. [AN].
- 6) The support force commander rehearses maneuvering the support force into its overwatch positions. [FM 71-3, p. 6-45].
 - a) The support force FSO rehearses indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].
 - (1) The support force FSO calls for smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].
 - (2) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].
 - b) The smoke unit rehearses occupying positions and smoke operations in support of the river crossing. [AN].

7) The brigade crossing area commander rehearses establishing his HQ, normally the brigade main CP. [AN].

8) The brigade assault force rehearses crossing the river and seizing its initial objectives. [FM 71-3, p. 6-45].

a) Engineers prepare the entry points for swimming combat vehicles or rafts for tanks. [FM 71-3, p. 6-45].

b) Corps bridging engineers prepare rafts for the assault river crossing. [FM 71-3, p. 6-45].

c) Engineers reduce obstacles on the near side of the crossing site. [FM 71-3, p. 6-45].

d) The brigade assault force assaults across the river, Bn TFs: [FM 71-3, p. 6-44].

(1) Seize bridges, cross in-stride. [FM 71-3, p. 6-44].

(2) Use rafts. [FM 71-3, p. 6-44].

(3) Use fords. [FM 71-3, p. 6-44].

(4) Conduct amphibious assaults. [FM 71-3, p. 6-44].

e) The brigade assault force seizes the brigade's initial objectives on the far side of the river and secures the bridgehead. [FM 71-3, p. 6-45].

f) Engineers reduce obstacles on the far side of the river. [AN].

g) Engineers prepare exit points for bridges or rafts. [AN].

h) The brigade assault force FSO rehearses indirect fires, including: [FM 71-123, p. 6-33; ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) Smoke to obscure the building of bridges, rafts, and fords and the crossing of brigade follow-and-support forces. [FM 71-123, p. 6-33].

(2) Fires (including SCATMINES) that interdict enemy routes to the crossing sites. [FM 71-123, p. 6-33].

(3) Fires that support the maneuver of the brigade assault force to the release point/line of the crossing area. [FM 71-123, p. 6-33].

9) The brigade rehearses the activation of the brigade crossing area HQ and actions of brigade support forces. [FM 71-3, p. 6-45].

a) Engineers rehearse the construction of bridges, rafts, or fords. [FM 71-3, p. 6-45].

b) Follow-and-support units rehearse movement to and crossing the river. [FM 71-3, p. 6-45].

c) The brigade crossing area commander and staff rehearse the following:
[FM 90-13, p. 4-9].

- (1) Command and control of the crossing area. [AN].
 - (a) Adjust crossing schedule as the tactical situation changes. [AN].
 - (b) Maintain situational awareness of the location of units in the crossing area. [AN].
 - (c) Establish and maintain communications in the crossing area. [AN].
- (2) Controlling brigade units in the crossing area. [FM 90-13, p. 4-9].
- (3) Controlling the brigade support force after the completion of the assault. [FM 90-13, p. 4-9].
- (4) Sequencing the brigade support force across the river. [FM 90-13, p. 4-9].
- (5) Returning tactical control of units (to the brigade commander) after they arrive in the attack positions on the far-shore. [FM 90-13, p. 4-9].

d) The MPs rehearse the control of traffic in the brigade crossing area. [FM 71-3, p. 6-43].

- (1) The MPs control traffic in the brigade crossing area. [FM 71-3, p. 6-43].
- (2) The MPs direct traffic from assembly areas to staging areas. [FM 71-3, p. 6-43].
- (3) The MPs sequence brigade elements out of staging areas to the crossing site and across the river. [FM 71-3, p. 6-43].

10) Engineer elements rehearse maintaining the road network leading to and away from the crossing sites. [FM 71-123, p. 6-34].

11) The brigade crossing area commander rehearses the hand-over of control of the crossing area to division or corps follow-on units when the brigade has crossed the river. [AN].

e. The brigade commander and brigade staff conduct checks of Bn TFs river crossing safety preparations. [AN].

- 1) Troops are prepared and briefed for the crossing. [AN].
 - a) Personal items of equipment and actions. [AN].
 - b) Configuration of vehicles. [AN].
- 2) Vehicles are prepared for assault swimming or fording. [AN].

3) Vehicle drivers are briefed on crossing using rafts, assault bridges, swimming, or fording. [AN].

4) Safety equipment is available. [AN].

EXECUTION Tasks and Task Elements

5. The brigade staff collects information for overcoming obstacles.

a. The brigade S2 section collects mobility intelligence data from reports from reconnaissance elements. [ARTEP 71-3-MTP, Task: 71-3-2006/3].

1) The INTSUM from the division G2. [AN].

2) Information from division and adjacent units' staffs which answer previously submitted information queries. [AN].

3) The SPOTREPs from subordinate reconnaissance elements performing brigade R&S operations. [AN].

4) The SPOTREPs from Bn TF S2s. [AN].

5) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [AN].

b. The brigade S3 and S3 section monitor and collect information for mobility operations. [AN].

1) The brigade S3 and S3 section monitor the progress of the Bn TFs in overcoming obstacles and the accomplishment of their missions. [ARTEP 71-3-MTP, Task: 71-3-3003/1].

2) The brigade S3 and S3 section monitor the progress of engineering work for river crossing operations. [AN].

a) Preparation of near- and far-shore banks. [AN].

b) Reduction of obstacles on the near- and far-shore. [AN].

c) Preparation of fords, rafts, and bridges. [AN].

3) The brigade S3 and S3 section monitor reports of SCATMINES used by the enemy. [AN].

4) The brigade S3 and S3 section acquire subordinate units' FRAGOs. [AN].

5) The brigade S3 and S3 section collect reports from the Bn TFs and CS units. [AN].

a) Strength reports (e.g., number of mobility assets ready). [AN].

(1) Maneuver unit mechanical breaching equipment status. [AN].

(2) Engineer equipment status. [AN].

- (3) Engineer bridging unit status. [AN].
- (4) The FA status. [AN].
- (5) Smoke unit status. [AN].
- b) The SPOTREPs on enemy obstacles found by Bn TF reconnaissance elements. [AN].
 - 6) The brigade S3 and S3 section collect requests for resources from subordinate units. [AN].
 - 7) The brigade S3 and S3 section collect recommendations from subordinate commanders for modifications to their assigned missions. [AN].
 - 8) The brigade S3 and S3 section collect the updated SITEMP, event template, and MCOO from the brigade S2. [AN].
 - 9) The brigade S3 and S3 section collect information on brigade routes, staging areas, assault positions, SBF positions, and selected sites for breaching or crossing an obstacle. [AN].
 - 10) The brigade S3 and S3 section collect recommendations and changes to the FS plan from the brigade FSO. [AN].
 - 11) The brigade S3 and S3 section monitor indirect fire missions. [AN].
 - 12) The brigade S3 and S3 section monitor ammunition levels for all forces (e.g., support force, assault force). [AN].
 - 13) The brigade S3 and S3 section acquire information from the ABE: [AN].
 - a) Updated EBA. [AN].
 - b) Recommendations and changes to the engineer battalion's mobility missions. [AN].
 - c) Reports of enemy minefield locations. [AN].
 - d) Information from the final coordination with the stationary force engineer for a passage of lines. [AN].
 - 14) The brigade S3 and S3 section collect information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [AN].
- c. The brigade FSO collects information and monitors calls-for-fire by Bn TF FSEs in support of mobility operations. [ARTEP 71-3-MTP, Task: 71-3-9002].
 - 1) Intelligence information, acquired from the DIVARTY S3 and the DS artillery battalion staff, on the locations of enemy units and FS assets that could influence the breach or crossing. [AN].

- 2) Artillery status from the DS FA battalion. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - a) Location and status of firing batteries. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - b) Ammunition types and quantities. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - 3) Execution of Bn TF FS plans. [ARTEP 71-3-MTP, Task: 71-3-9002/4].
 - 4) Execution of SCATMINE missions. [ARTEP 71-3-MTP, Task: 71-3-9002/2].
 - 5) Status reports on positioning of observers. [ARTEP 71-3-MTP, Task: 71-3-9002/1].
 - 6) Information from the brigade staff and LOs acquired from their counterparts in higher, adjacent, and parent units. [ARTEP 71-3-MTP, Task: 71-3-9002/3].
- d. The brigade CHEMO collects information and monitors the activities of the smoke unit during mobility operations: [AN].
- 1) The brigade CHEMO collects weather reports from the brigade S2. [AN].
 - 2) The brigade CHEMO collects adjustments to the positioning of the smoke generators from the smoke unit. [AN].
 - 3) The brigade CHEMO monitors the supporting smoke unit's status: [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - a) The status of personnel, equipment, and POL. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
 - b) Location of the smoke unit. [ARTEP 3-117-40-MTP, Task: 3-4-0004/1].
- e. The ABE acquires information on engineer operations: [AN].
- 1) The ABE monitors engineer operations in the brigade AO. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - a) The availability of engineer equipment. [AN].
 - b) The execution of the brigade obstacle plan that supports the brigade mobility plan. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - c) The construction of combat routes and trails. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - d) The clearing and repairing of routes in support of tactical and logistical operations. [ARTEP 71-3-MTP, Task: 71-3-8005/1].
 - 2) The ABE collects conventional minefield reports. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

3) The ABE collects SCATMINE reports, records, and warnings. [ARTEP 71-3-MTP, Task: 71-3-8005/1].

4) The ABE collects reports from reconnaissance and engineer units on routes, bypassed obstacles, and minefields. [FM 5-100, p. 44].

5) The ABE maintains continuous communications with the engineer unit commanders supporting the brigade. [FM 5-100, p. 25].

a) The ABE collects reports from divisional and corps engineer units within the brigade AO and keeps the brigade S3 and engineer battalion commander informed on current engineer operations. [FM 5-100, p. 30].

b) The ABE collects reports of the engineer units' status and keeps the brigade S3 informed. [FM 5-100, p. 34].

f. The brigade S4 monitors logistics during mobility operations: [AN].

1) The delivery of Class V demolitions for overcoming obstacles. [AN].

2) The recovery and servicing of maneuver and engineer mobility equipment. [AN].

3) Requests for necessary Class IV and Class V for the engineer units from the engineer battalion S4 and Bn TF S4s. [ARTEP 71-3-MTP, Task: 71-3-4002/1; FM 5-100, p. 39].

6. The brigade conducts mobility operations.

a. The brigade negotiates a friendly obstacle system. [FM 71-3, p. 6-17].

1) The brigade engineer links up with the stationary force engineer at the contact point and performs final coordination of the passage of lines. [FM 71-3, p. 6-17].

a) Enemy engineer intelligence, received from the stationary force engineer, is sent to the brigade S2. [FM 71-3, p. 6-15].

b) Locations and status of enemy and friendly obstacles are sent to the brigade S2 and S3. [FM 71-3, p. 6-15].

c) Locations of lanes and bypasses are sent to the brigade S3. [FM 71-3, p. 6-15].

1) The brigade engineer confirms the locations of obstacles and marked lanes or bypasses along the designated passage lanes. [FM 71-3, p. 6-17].

2) The brigade engineer ensures that obstacles to be removed by the stationary force are reduced. [FM 71-123, p. 6-4].

3) The brigade engineer monitors the reduction of obstacles that block the brigade's axes or routes and ensures that they are not breached prematurely. [FM 71-123, p. 6-19].

4) The Bn TF engineers and other Bn TF units with mobility equipment (e.g., plows and rollers) proof lanes cleared through friendly obstacle systems. [FM 71-123, p. 6-8].

5) The brigade S3 monitors the execution of demolitions on other obstacles as part of the brigade's role in the division deception plan. [FM 71-123, p. 6-8].

b. Brigade elements encounter previously undetected obstacles (e.g., a destroyed bridge, SCATMINES). [AN].

1) The Bn TF commanders report obstacles to the brigade commander as their Bn TFs breach in-stride or bypass obstacles. [AN].

2) A Bn TF which is unable to breach in-stride or bypass an obstacle takes a tactical pause to plan, prepare, and execute a Bn TF deliberate breach. (See Bn TF CCF 21.) [AN].

3) The brigade's Bn TFs which are unable to breach an obstacle in-stride or deliberately take a tactical pause to plan, prepare, and execute a brigade deliberate breach. [AN].

c. The brigade commander directs and leads the brigade in the execution of a brigade deliberate breach of an obstacle system. [AN].

1) The Bn TF reconnaissance elements continue to reconnoiter and report information on the breach sites and bypasses. [FM 71-123, p. 6-37].

2) The brigade S2 collects reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [AN].

c) Location of enemy FS assets. [AN].

d) New obstacles. [AN].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 synchronize the brigade breaching operations: [AN].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan and issue FRAGOs as necessary. [FM 71-3, p. 4-41].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces using the: [AN].

- (1) DST. [AN].
- (2) Synchronization matrix. [AN].
- (3) Execution matrix. [AN].
- (4) FS execution matrix. [AN].

4) The brigade FSO directs and coordinates fires requested by the brigade commander and brigade elements directed on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The support force commander maneuvers the support force into its overwatch positions. [FM 71-3, p. 4-41].

a) The support force commander reports the situation to the brigade commander. [FM 71-3, p. 4-41].

b) The support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

- (1) The support force FSO calls for and adjusts smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].
- (2) The support force FSO maintains obscurity. [ARTEP 71-3-MTP, Task: 71-3-9003/1].
- (3) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

c) The support force commander directs the support force in suppressing the enemy with direct fires. [AN].

d) The smoke unit occupies positions and begins smoke operations in support of the breach. [AN].

6) The brigade breach force commander maneuvers the brigade breaching force into its assault positions and reports the situation to the brigade commander. [FM 71-3, p. 4-41].

7) The brigade assault force commander maneuvers the brigade assault force into its assault positions and reports the situation to the brigade commander. [FM 71-3, p. 4-41].

a) The brigade assault force remains in a covered and concealed position. [FM 71-3, p. 4-41].

b) The brigade assault force occupies an SBF position and its commander directs fires to suppress or destroy enemy forces. [FM 71-3, p. 4-41].

8) The brigade breach force commander maneuvers the breaching element to the breach locations. [FM 71-3, p. 4-41].

a) The brigade breach force commander directs the engineers and Bn TF mobility assets in the reduction of the obstacles and the creation of lanes. [FM 71-3, p. 4-41].

b) The brigade breach force commander directs the positioning of smoke pots to obscure the breach. [FM 71-3, p. 4-41].

c) The brigade breach force penetrates the obstacle system and establishes a lodgement area on the far side by establishing a hasty defense. [FM 90-13-1, pp. 2-3 to 2-4].

d) The brigade breach force marks lanes through the obstacle system. [FM 90-13-1, pp. 2-3 to 2-4].

e) The brigade breach force proofs the lanes. [AN].

f) The brigade breach force commander reports to the brigade commander that the breach is complete. [AN].

9) The brigade commander orders the brigade assault force commander to move the brigade assault force through the lanes. [AN].

a) The brigade assault force commander directs the support force to shift direct fires. [AN].

b) The brigade assault force commander directs the brigade assault force FSO to lift and shift indirect fires. [AN].

c) The brigade assault force seizes the objective, continues the attack (finds and attacks the enemy reserve), or establishes a hasty defense. [AN].

10) The engineer battalion commander monitors the reduction of the obstacle, ensuring that: [FM 90-13-1, p. 4-4].

a) The brigade breach force engineers remain with the obstacle and continue to improve the lanes through the obstacle system. [FM 90-13-1, p. 4-4].

b) The brigade breach force engineers ensure that lanes are marked. [FM 90-13-1, p. 4-4].

c) The enemy's attempts to re-establish the obstacle with SCATMINES are overcome. [AN].

11) The engineer battalion commander coordinates with follow-on unit engineers to hand over the obstacle. [FM 90-13-1, p. 4-4].

12) The brigade S3 coordinates the brigade's remaining elements passing through the breach and continuing the brigade's mission. [AN].

d. The brigade commander directs and leads the execution of an assault as part of a divisional deliberate river crossing. [AN].

1) Reconnaissance elements continue to reconnoiter and report information on the brigade crossing sites to the brigade S3 and S2. [FM 71-123, p. 6-37].

2) The brigade S2 acquires reports from reconnaissance elements and Bn TF S2s on: [FM 71-123, p. 6-37].

a) Enemy activity, including repositioning. [FM 71-123, p. 6-37].

b) Location of enemy reserve. [AN].

c) Location of enemy FS assets. [AN].

d) New in-the-water, near-shore, and far-shore obstacles. [AN].

(1) Location. [AN].

(2) Type. [AN].

(3) Orientation. [AN].

3) The brigade commander and brigade S3 direct brigade units and synchronize river crossing operations. [FM 71-3, p. 4-41].

a) The brigade commander and brigade S3 determine required adjustments to the brigade mobility plan and issue FRAGOs as necessary. [FM 71-3, p. 4-41].

b) The brigade commander and brigade S3 direct and clear indirect fires. [AN].

c) The brigade commander and brigade S3 coordinate indirect and direct fires. [AN].

d) The brigade commander and brigade S3 synchronize the maneuver and fires of the breach, support, and assault forces with: [AN].

(1) The DST. [AN].

(2) Synchronization matrix. [AN].

(3) Execution matrix. [AN].

(4) The FS execution matrix. [AN].

4) The brigade FSO directs and coordinates fires requested by brigade elements on enemy positions. [FM 71-123, p. 6-37].

a) The brigade FSO directs the attack of enemy reserves with indirect fires. [FM 71-123, p. 6-37].

b) The brigade FSO coordinates counterbattery fires in the brigade sector. [FM 71-123, p. 6-37].

5) The crossing force commander maneuvers the crossing force into its assault positions. [FM 71-3, p. 6-45].

a) The crossing force commander reports the situation to the brigade commander. [FM 71-3, p. 6-45].

b) Vehicle crews prepare vehicles for swimming or fording the river. [AN].

c) Vehicles are separated into and positioned as raft loads. [AN].

d) Safety checks are made. Vehicle operators, crews, and passengers are given safety briefings. [AN].

6) The support force commander maneuvers the support force into its overwatch positions and reports the situation to the brigade commander. [FM 71-3, p. 6-45].

a) The support force FSO directs indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(1) The support force FSO calls for and adjusts the smoke missions (artillery or mortar delivered). [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(2) The support force FSO maintains obscurity. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

(3) The support force FSO directs the suppression or destruction of enemy forces covering obstacles with indirect fires. [ARTEP 71-3-MTP, Task: 71-3-9003/1].

b) The support force commander directs the support force in suppressing the enemy with direct fires. [AN].

c) The smoke unit occupies positions and begins smoke operations in support of the river crossing. [AN].

7) The brigade crossing area commander establishes his HQ, normally the brigade main CP, where he can control the crossing area. [AN].

8) The brigade commander orders the brigade assault force to cross the river and seize its initial objectives. [FM 71-3, p. 6-45].

a) Engineers prepare the entry points for swimming combat vehicles or rafts for tanks. [FM 71-3, p. 6-45].

b) Corps bridging engineers prepare rafts for an assault river crossing. [FM 71-3, p. 6-45].

c) Engineers reduce obstacles on the near side of the crossing site. [FM 71-3, p. 6-45].

d) The brigade assault force assaults across the river; Bn TFs: [FM 71-3, p. 6-44].

- (1) Seize bridges, cross in-stride. [AN].
- (2) Use rafts. [AN].
- (3) Use fords. [AN].
- (4) Conduct amphibious assaults. [AN].
- e) The brigade assault force seizes the brigade's initial objectives on the far side of the river. [FM 71-3, p. 6-45].
- f) Engineers reduce obstacles on the far side of the river. [AN].
- g) Engineers prepare exit points for bridges or rafts. [AN].
- h) The brigade assault force commander reports to the brigade and brigade crossing area commanders when the far-side objectives are secure. [FM 71-3, p. 6-45].
- i) The brigade assault force commander continues the attack in the area between the exit and release points/lines for the crossing area. [FM 71-123, p. 6-30].
- j) The brigade assault force FSO directs indirect fires, including: [FM 71-123, p. 6-33; ARTEP 71-3-MTP, Task: 71-3-9003/1].
 - (1) Smoke to obscure the building of bridges, rafts, and fords and the crossing of follow-and-support forces. [AN].
 - (2) Fires (including SCATMINES) that interdict enemy routes to the crossing sites. [AN].
 - (3) Fires that support the maneuver of the brigade assault force to the release point/line of the crossing area. [AN].
- 9) On order of the brigade commander, the brigade crossing area commander assumes control of the crossing area. [FM 71-3, p. 6-45].
 - a) The brigade crossing area commander orders the engineers to begin the construction of bridges, rafts, or fords. [FM 71-3, p. 6-45].
 - b) Upon completion of the bridge, rafts, or fords, the brigade crossing area commander begins the movement of the brigade across the river. The initial units crossing the river include: [FM 71-3, p. 6-45].
 - (1) Combat elements to reinforce the brigade assault force. [AN].
 - (2) The CSS elements to resupply, recover vehicles, and evacuate casualties. [AN].
 - c) The brigade crossing area commander and staff do the following: [FM 90-13, p. 4-9].
 - (1) Control brigade units in the crossing area. [FM 90-13, p. 4-9].

- (2) Control the brigade support force after the completion of the assault. [FM 90-13, p. 4-9].
 - (3) Sequence the brigade support force across the river. [FM 90-13, p. 4-9].
 - (4) Return tactical control of units (to the brigade commander) after they arrive in the attack positions on the far-shore. [FM 90-13, p. 4-9].
- d) Under the control of the brigade crossing area commander, MPs: [FM 71-3, p. 6-43].

- (1) Control traffic in the crossing area. [AN].
- (2) Direct traffic from assembly areas to staging areas. [AN].
- (3) Sequence brigade elements out of staging areas to the crossing site and across the river. [AN].

10) The engineer battalion commander directs engineer elements in maintaining the road network leading to and away from the crossing sites. [FM 71-123, p. 6-34].

11) The brigade crossing area commander hands over control of the brigade crossing area to division or corps follow-on-units when the brigade has crossed the river. [AN].

7. The brigade reorganizes on the objective.

a. The Bn TFs consolidate on their objectives. (See Bn TF CCF 20.) [ARTEP 71-2-MTP, Task: 7-1-3022].

- 1) The Bn TFs report the status of mobility assets to the brigade S3. [AN].
- 2) The Bn TFs reorganize company/team organic mobility equipment. [AN].
- 3) Engineer companies reorganize internally and request replenishment from the engineer battalion. [AN].

b. The engineer battalion supports the brigade consolidation with engineer support. [AN].

- 1) Assets are employed to reduce enemy obstacles in the brigade AO. [AN].
- 2) Assets are used to improve roads and trails for the movement of units and logistics. [AN].
 - a) Craters are filled. [AN].
 - b) Rubble is cleared. [AN].
 - c) Vegetation is cleared. [AN].

c. The brigade reorganizes degraded units and engineer capabilities (including rollers and plows). [AN].

Task List for Brigade CCF 21

1) Brigade XO oversees reorganization/refit of units designated by the brigade commander. [ARTEP 71-3-MTP, Task: 71-3-0002/3].

2) The brigade XO ensures that the reorganized/refitted units are combat ready upon completion of their reorganization/refit. [ARTEP 71-3-MTP, Task: 71-3-0002/4].

3) The brigade XO oversees weapons system replacement operations. [ARTEP 71-3-MTP, Task: 71-3-0002/5].

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This subcomponent identifies the references and sources used by the author to develop the CCF task list. This component provides users with sources for further information.

Field Manuals (FMs)

3-50	Smoke Operations, 4 December 1990
5-34	Engineer Field Data, 14 September 1987
5-71-3	Brigade Engineer Combat Operations (Armored), 3 October 1995
5-71-100	Division Engineer Combat Operations, 22 April 1993
5-100	Engineer Combat Operations, 22 November 1988
5-100	Engineer Operations, Final Draft, May 1995
5-100-15	Corps Engineer Operations, 6 June 1995
5-101	Mobility, 23 January 1985
20-32	Mine/Countermining Operations with Change 1, 17 August 1994
25-100	Training the Force, 15 November 1988
25-101	Battle Focused Training, 30 September 1990
71-3	Armored and Mechanized Infantry Brigade, 8 January 1996
71-123	Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company/Team; 30 September 1992
90-7	Combined Arms Obstacle Integration, 29 September 1994
90-13	River Crossing Operations, 30 September 1992
90-13-1	Combined Arms Breaching Operations with Change 1, 7 May 1993
101-5	Command and Control for Commanders and Staff (Final Draft), August 1993
101-5-1	Operational Terms and Symbols, 21 October 1985

Army Training and Evaluation Program Mission Training Plans (MTP)

- 3-117-40-MTP Mission Training Plan for Chemical Section and NBC Center, 29 September 1994
- 5-145-MTP Mission Training Plan for the Headquarters and Headquarters Company Engineer Battalion Heavy Division/Corps, 17 February 1989
- 5-145-11-MTP Mission Training Plan for the Combat Engineer Platoon, Heavy Division/Corps/ Armored Cavalry Regiment, 17 February 1989
- 5-145-31-MTP Mission Training Plan for the Engineer Company, Heavy Division/Corps/Armored Cavalry Regiment, 17 February 1989
- 5-402-33-MTP Mission Training Plan For Engineer Groups and Brigades Engineer Group, Combat, TOE 05412L200; Engineer Group, Construction, TOE 05412L100; Engineer Brigade, Heavy Division, TOE 05332L000; Engineer Brigade Corps, TOE 05402L000; Engineer Brigade, Theater Army, TOE 05602L000; No Date
- 71-3-MTP Mission Training Plan for the Heavy Brigade Command Group and Staff, 3 October 1988

Soldier Training Publications (STPs)

- 5-12B24-SM-TG Combat Engineer Soldier's Manual, Level 2/3/4, 12 December 1990
- 5-21II-MQS Military Qualification Standards II, Engineer (21), Company Grade Officer's Manual, 22 March 1991
- 7-11II-MQS Military Qualification Standards II, Infantry Branch (11), Company Grade Officer's Manual, 22 March 1991
- 17-12II-MQS Military Qualification Standards II, Armor Branch (12), Company Grade Officer's Manual, 4 February 1991

Center for Army Lessons Learned (CALL) Publications

NTC Commander's Memorandum — November 1985

CALL Newsletter No. 3 — September 1986

CATA Commander's Comments, The CS Team — May 1987

CALL Newsletter 88-2: Minefield Breaching — May 1988

CALL Newsletter No.88-3: Heavy Forces — Fall 1988

CALL Newsletter No. 89-4: Corps/Division — November 1989

CALL Newsletter No. 90-5: Fire Support — May 1990

CALL Newsletter No. 90-8: Winning in the Desert II — September 1990

CALL Special Edition, "Somalia," No. 93-1, January 1993

CALL CTCs Bulletin, "Lessons and Information," No. 93-4, July 1993

"The Musicians of Mars: A Story of Synchronization for the Company/Team Commander,"
Combined Arms Training Activity, Center for Army Lessons Learned, No. 90-6, June 1990

CALL COMPENDIUM, "Volume I: Heavy Forces," Fall 1988

ACRONYMS AND ABBREVIATIONS

This component identifies the acronyms used by the author in the task analysis. For those acronyms derived from doctrinal publications, the publication appears in brackets.

A	A2C2	Army airspace command and control [FM 71-3]
	AAR	after action review
	ABE	assistant brigade engineer [FM 71-3]
	AD	air defense [FM 101-5]
	ADA	air defense artillery
	ADLO	air defense liaison officer
	ALO	air liaison officer [FM 71-3]
	AN	author note
	AO	area of operations [FM 71-3]
	ARTEP	Army Training and Evaluation Program [FM 71-3]
	ASAP	as soon as possible
	ASAT	Automated Systems Approach to Training
	AT	anti-tank
	ATDL	Army Training Digital Library
	AVLB	armored vehicle launched bridge [FM 71-3]
B	BCT	brigade combat team
	Bde	brigade [FM 71-3]
	BFV	Bradley Fighting Vehicle (M2/M3) [FM 71-3]
	BLUFOR	blue forces
	Bn TF	battalion/task force
	Bn	battalion [FM 71-3]
	BOS	battlefield operating system(s) [FM 71-3]
	BSA	brigade support area [FM 71-3]
C	C2	command and control [FM 71-3]

	CALL	Center for Army Lessons Learned
	CATS	Combined Arms Training Strategy
	CCF	critical combat function
	CCIR	commander's critical information requirements [FM 71-3]
	Cdr	commander [FM 71-3]
	CEWI	combat electronic warfare intelligence
	CHEMO	chemical officer [FM 5-71-3]
	CINC	Commander-in-Chief
	CMTC	Combat Maneuver Training Center
	COA	course of action [FM 71-3]
	CP	command post [FM 71-3]
	CS	combat support [FM 71-3]
	CSR	controlled supply rate [FM 71-3]
	CSS	combat service support [FM 71-3]
	CTC	Combat Training Center
D	DA	Department of the Army
	DDMP	deliberate decision making process [FM 71-3]
	DF	direction find [FM 6-20-10]
	DIVARTY	division artillery [FM 71-3]
	DIVEN	division engineer [FM 5-71-3]
	DS	direct support [FM 71-3]
	DST	decision support template [FM 71-3]
	DTTP	doctrine, tactics, techniques, and procedures
E	EA	engagement area [FM 71-3]
	EBA	engineer battlefield assessment [FM 5-71-3]
	EOCA	enemy course of action

	Engr	engineer [FM 71-3]
	EPW	enemy prisoner of war [FM 71-3]
F	FA	field artillery [FM 71-3]
	FASCAM	family of scatterable mines
	FCT	firepower control team [FM 71-3]
	FDC	fire direction center [FM 71-3]
	FEA	front end analysis
	FM	field manual [FM 71-3]
	FN	field note
	FO	forward observer [FM 71-3]
	FORSCOM	Forces Command [FM 71-3]
	FRAGO	fragmentary order [FM 71-3]
	FS	fire support [FM 71-3]
	FSB	forward support battalion [FM 71-3]
	FSCoord	fire support coordinator
	FSE	fire support element [FM 71-3]
	FSO	fire support officer [FM 71-3]
G	G2	Intelligence, General Staff [FM 101-5]
	G3	Operations (division); Operations and Plans (corps), General Staff [FM 101-5]
	GS	general support [FM 71-3]
H	HQ	headquarters [FM 71-3]
I	IAW	in accordance with
	INTSUM	intelligence summary [FM 71-3]
	IPB	intelligence preparation of the battlefield [FM 71-3]
	IR	intelligence requirement(s) [FM 71-3]

L	LD	line of departure [FM 71-3]
	Ldr	leader [FM 71-3]
	LL	lessons learned
	LNO	liaison officer
	LO	liaison officer [FM 71-3]
	LOGPAC	logistic package [FM 71-3]
M	MCOO	modified combined arms obstacle overlay [FM 6-20-10]
	METL	mission essential task list
	MI	military intelligence [FM 71-3]
	MICLIC	mine clearing line charge [FM 71-3]
	MP	military police [FM 71-3]
	MQS	military qualification standards
	MSR	main supply route [FM 71-3]
	MTP	mission training plan [FM 71-3]
N	NAI	named area of interest [FM 71-3]
	NBC	nuclear, biological, and chemical [FM 71-3]
	NCO	noncommissioned officer [FM 71-3]
	NGF	naval gun fire [FM 71-3]
	NTC	National Training Center
O	OC	observer-controller [FM 101-5]
	OCOKA	observation, cover and concealment, obstacles, key terrain, avenues of approach [FM 71-3]
	Off	officer [FM 71-100]
	OPCON	operational control [FM 71-3]
	OPFOR	opposing forces
	OPORD	operations order [FM 71-3]

	OPSEC	operations security
P	PIR	priority intelligence requirement [FM 71-3]
	Plt	platoon [FM 71-3]
	POL	petroleum, oils, and lubricants [FM 71-3]
	PSYOPS	psychological operations [FM 71-3]
R	R&S	reconnaissance and surveillance [FM 71-3]
	recon	reconnaissance [FM 71-3]
	RP	research product
S	S1	Adjutant/Personnel Officer, Brigade and Battalion Staff [FM 71-3]
	S2	Intelligence Officer, Brigade and Battalion Staff [FM 71-3]
	S3	Operations and Training Officer, Brigade and Battalion Staff [FM 71-3]
	S4	Supply/Logistics Officer, Brigade and Battalion Staff [FM 71-3]
	SALT	supporting arms liaison team [FM 71-3]
	SATS	Standard Army Training System
	SBF	support by fire [FM 5-71-3]
	SCATMINE	scatterable mine [FM 5-71-3]
	Sec	section [FM 71-3]
	SHORAD	short range air defense
	SITEMP	situational template
	SME	subject matter expert
	SMK/DECON	smoke/decontamination
	SOP	standing operating procedure [FM 71-3]
	SOSR	secure, obscure, suppress, and reduce
	SPOTREP	spot report [FM 71-3]
	STAARS	standard after action review system

	STP	Soldier Training Publications [FM 25-101]
T	TA	task analysis
	TACP	tactical air control party
	TADSS	training aids, devices, simulators, and simulations
	TAI	target area of interest [FM 71-3]
	TF	task force [FM 71-3]
	TO	task organization [**]
	TOC	tactical operations center [FM 71-3]
	TOE	table of organization and equipment [FM 71-3]
	TOW	tube-launched, optically-tracked, wire-guided missile [FM 71-3]
	TRADOC	Training and Doctrine Command
	TSOP	tactical standing operating procedures [FM 71-3]
	TSP	training support package
	TTP	tactics, techniques, and procedures
U	U.S.	United States [FM 71-3]
	USAF	United States Air Force [FM 71-3]
	USMC	United States Marine Corps [AR 310-50]
	USN	United States Navy [AR 310-50]
W	WARNO	warning order [FM 101-5-1]
	WP	white phosphorus
X	XO	executive officer [FM 71-3]

**INDEX of
BRIGADE CRITICAL COMBAT FUNCTIONS**
Grouped By Battlefield Operating System (BOS)

This component lists the thirty-nine (39) CCFs for each BOS which have been identified as relevant to U.S. Army tactical echelon units. These CCFs were identified based on an analysis of TRADOC Pamphlet 11-9, "Blueprint of the Battlefield." The purpose of this component is to depict the BOS and the CCF which define each BOS.

INTELLIGENCE	(1)	Conduct intelligence planning.
	(2)	Collect information.
	(3)	Process information.
	(4)	Disseminate intelligence.
MANEUVER	(5)	Conduct tactical movement.
	(6)	Engage enemy with direct fire and maneuver.
AIR DEFENSE	(16)	Take active air defense measures.
	(17)	Take passive air defense measures.
FIRE SUPPORT	(7)	Employ mortars.
	(8)	Employ field artillery.
	(9)	Employ close air support.
	(10)	Conduct electronic collection and electronic attack.
	(11)	Conduct battlefield psychological operations (PSYOPS).
	(12)	~~Employ chemical weapons.*~~
	(13)	Conduct counter target acquisition operations.
	(14)	Employ naval surface fires.
MOBILITY AND SURVIVABILITY	(15)	Coordinate, synchronize and integrate fire support.
	(21)	Overcome obstacles.
	(22)	Enhance movement.
	(23)	Provide countermobility.
	(24)	Enhance physical protection.
	(25)	Provide operations security.
	(26)	Conduct deception operations.
	(27)	Provide NBC defense.

* Although U.S. national policy has renounced the use of chemical weapons, this CCF is retained because it is a function which could be performed by other nations.

**COMMAND AND
CONTROL**

- (18) Plan for combat operations.
- (19) Direct and lead unit during preparation for the battle.
- (20) Direct and lead units in execution of battle.

**COMBAT SERVICE
SUPPORT**

- (28) Provide transport services.
- (29) Conduct supply operations.
- (30) Provide personnel services.
- (31) Maintain weapons systems and equipment.
- (32) Provide health services.
- (33) Treat and evacuate battlefield casualties.
- (34) Conduct enemy prisoners of war (EPW) operations.
- (35) Conduct law and order operations.
- (36) Conduct civil affairs operations.
- (37) Provide sustainment engineering.
- (38) Evacuate non-combatants from area of operations.
- (39) Provide field services.

STRUCTURE OF CRITICAL COMBAT FUNCTIONS (CCFs) RELEVANT TO BRIGADE COMBAT TEAM OPERATIONS

This component provides a description of each CCF and the BOS with which it is aligned. Included with each CCF definition is a listing of major doctrinal topics and aspects addressed by the CCF. These definitions provide the necessary framework required to understand the focus of each CCF. Under most circumstances, brigade combat teams will be involved in the accomplishment of some or all aspects of the CCF. The involvement can vary from extensive, wherein the CCF is a major focus, to minor, wherein the brigade headquarters only furnishes information. In the latter instances, the involvement may not be sufficient to warrant incorporation into a brigade combat team's training program, although the brigade's responsibilities are likely addressed in its SOP for TSOP. The CCF definitions were extrapolated from TRADOC Pam 350-7 "Blueprint of the Battlefield," as well as other doctrinal publications relevant to the applicable CCF or BOS.

1. Intelligence BOS - The ways and means of acquiring, analyzing, and using knowledge of the enemy, weather, and terrain required by a commander in planning, preparing, and conducting combat operations. These CCF are continuous throughout the planning, preparation, and execution phases of the battle.

a. CCF (1) Conduct Intelligence Planning - The developing and coordinating of information relative to the enemy, weather, and terrain prior to and during the development of the unit OPORD; the planning to collect information from battlefield sources and to acquire intelligence from other headquarters. Focus of this CCF is the IPB. This CCF addresses:

- 1) R & S Plan.
- 2) Integrated threat templates (e.g., doctrinal, event, input to DST).
- 3) Terrain and weather analysis.

b. CCF (2) Collect Information - Obtaining information in any manner from the brigade combat team's (BCT's) elements and from sources outside the BCT (e.g., higher headquarters and adjacent units). This CCF includes the tasks associated with managing the processes and activities necessary to collect battlefield information which may eventually be used to provide intelligence relative to the enemy, terrain, and weather. This CCF addresses:

- 1) Information collected as a result of the R & S Plan.
- 2) Continuous information collection and acquisition from all sources.

c. CCF (3) Process Information - Converting information into intelligence through collation, evaluation, analysis, integration, and interpretation in a continual process. This CCF addresses:

- 1) Evaluation of threat information.
- 2) Evaluation of physical environment information.
- 3) Integration of intelligence information.
- 4) Development of enemy intentions.
- 5) Development of targeting information.

* Normally accomplished by units supporting the division.

- 6) Preparation of intelligence reports.
- 7) Update of situational template.
- 8) Provision of battlefield area reports.

d. **CCF (4) Disseminate Intelligence** - Transmitting of information by any means (verbal, written, electronic, etc.), from one person or place to another to provide timely dissemination of critical intelligence to all appropriate members of the combined arms team. This CCF addresses:

- 1) The sending of processed intelligence in a timely manner to those on the combined arms team who can, by its receipt, take appropriate actions to accomplish the mission. This includes intelligence on the enemy, terrain, and weather.

- 2) The sending of raw intelligence directly from those responsible for reconnaissance and surveillance to the commander should that raw intelligence be time sensitive (and not be subject to receipt and processing by intelligence analysts).

- 3) Dissemination of battlefield reports.

2. **Maneuver BOS** - The employment of direct fire weapons, platforms, and systems through movement and fire and maneuver to achieve a position of advantage in respect to enemy ground forces, in order to accomplish the mission. The direct fire weapons are tank guns, Bradley Fighting Vehicle (BFV) 25mm, anti-tank guns and rockets, attack helicopter guns and rockets, small arms, crew-served weapons, and directed energy weapons systems.

a. **CCF (5) Conduct Tactical Movement** - Planning for and directing the positioning of direct fire weapons systems relative to the enemy to secure or retain positional advantage, making full use of terrain and formations. Tactical movement occurs when contact with the enemy is likely or imminent but direct fire engagement has not yet occurred. Units supporting maneuver units are included. This CCF addresses:

- 1) Subordinate element OPORD preparation and dissemination.
- 2) Preparation for movement.
- 3) Movement, both mounted and dismounted, and on and off road.
- 4) Closure of movement to tactical assembly area or tactical positions.
- 5) Navigation.
- 6) Air movement.

b. **CCF (6) Engage Enemy with Direct Fire and Maneuver** - Planning for and directing elements in ground combat with the enemy using direct fire and/or close combat in order to destroy the enemy or cause him to withdraw. This CCF relates only to those direct fire weapons systems associated with the maneuver BOS. This CCF addresses:

- 1) Preparation of engagement areas.
- 2) Rehearsals of battle plans.

- 3) Prevention of fratricide.
- 4) Conduct of close combat.
- 5) Integration of direct fire with maneuver.
- 6) Control of terrain.
- 7) Consolidation and reorganization.

3. Fire Support BOS - The collective, coordinated, and synchronized use of target acquisition data, indirect fire weapons, armed aircraft (less attack helicopters) and other lethal and non-lethal means against ground targets in support of maneuver force operations and to achieve the commander's intent and scheme of maneuver. The fire support BOS addresses these weapons: mortars, field artillery, close air support, electronic measures, and naval surface fires.

a. **CCF (7) Employ Mortars** - Planning for and employment of mortars by the maneuver unit to place fires on the enemy or terrain to support the commander's concept and intent.

b. **CCF (8) Employ Field Artillery** - Planning for and directing of indirect artillery fires to be placed on the enemy or terrain to support the commander's concept and intent. The fire support coordination tasks necessary to integrate the field artillery and the maneuver units are the primary focus. This CCF does not address those field artillery tasks associated directly with those actions taken by the batteries of the artillery battalion in the conduct of their support mission such as fire direction center (FDC) operations, gun operations, etc. This CCF addresses:

- 1) Fire support - maneuver unit rehearsals.
- 2) The FSE operations during the preparation and execution phases of the battle.
- 3) Positioning and movement within the maneuver unit sector or zone.
- 4) Indirect fire missions in support of maneuver commander's concept and intent.

c. **CCF (9) Employ Close Air Support** - Planning for, requesting, and employing armed aircraft (less attack helicopters) in coordination with other fire support (lethal and non-lethal) against ground targets in support of the brigade commander's concept and intent. This CCF addresses:

- 1) Air-ground attack requests.
- 2) Air space coordination and management.

3) Air liaison officer, forward air controller; other Army fire support coordination officers, United States Navy (USN)/United States Marine Corps (USMC) brigade team commander, supporting arms liaison team (SALT) and firepower control team (FCT) tasks that enable air-to-ground attacks.

d. **CCF (10) Conduct Electronic Collection and Jamming** - Planning for and directing actions taken to deny the enemy effective command, control, and communications of his own tactical force in support of maneuver commander's concept and intent. This CCF includes jamming, deception, and collection.

* Normally accomplished by units supporting the division.

e. **CCF (11) Conduct Battlefield PSYOPS** - Planning for and directing the conduct or support of PSYOPS when PSYOPS units are available as an integral part of combat operations to bring psychological pressure to bear on enemy forces and civilians under enemy control in the battle area, to assist in the achievement of tactical objectives in support of the brigade commander's concept and intent.

f. ~~CCF (12) Employ Chemical Weapons*~~ - Employing chemical agents or other means to degrade enemy capabilities in support of the brigade commander's concept and intent.

g. **CCF (13) Conduct Counter Target Acquisition Operations** - Planning for and directing the suppression (e.g., using smoke or dazzling illumination) to degrade enemy direct observation, optics, radar, sensors, electronic direction find (DF) equipment, and imaging systems in support of the commander's concept and intent.

h. **CCF (14) Employ Naval Surface Fires** - Planning for and directing naval gunfire in support of the maneuver commander's concept and intent.

i. **CCF (15) Coordinate, Synchronize, and Integrate Fire Support** - Coordinating all fire support means in support of the maneuver commanders' concepts and intents. The CCF integrates CCF 7-14.

4. **Air Defense BOS** - The means and measures organic or assigned to the maneuver commander which, when employed successfully, will nullify or reduce the effectiveness of attack by hostile aircraft or missiles after they are airborne.

a. **CCF (16) Take Active Air Defense Measures** - Planning for and directing the application of firepower to destroy enemy air targets. This CCF encompasses the coordinating tasks which enable the commander to successfully employ any attached or assigned air defense weapons system, as well as the tasks necessary to employ all organic weapons systems against enemy air targets. This CCF addresses:

- 1) Employment of air defense artillery guns and missiles.
- 2) Employment of maneuver unit weapons systems such as small arms, automatic weapons, BFV 25 mm and tube-launched, optically-tracked, wire-guided missile (TOW), and tank main gun against enemy air.
- 3) Airspace management.
- 4) Early warning.

b. **CCF (17) Take Passive Air Defense Measures** - Planning for and directing the protection of the unit from enemy air by means other than weapons. This CCF addresses:

- 1) Early warning.
- 2) Dispersion.
- 3) Deception.

5. **Command and Control BOS** - The ways and means a commander exercises authority and direction over organic and assigned combat power in the accomplishment of the mission.

a. **CCF (18) Plan for Combat Operations** - The integration of all members of the unit

* Normally accomplished by units supporting the division.

in the coordinated development of an operations order which will guide the activities of the unit in conducting combat operations to accomplish assigned missions. The product/outcome of this CCF is a briefed, understood OPORD. This CCF addresses:

- 1) Receipt and analysis of higher HQ OPORD.
- 2) Issuance of warning order.
- 3) Restated mission statement.
- 4) Commander's estimate process/troop leading procedures.
- 5) Commander's guidance.
- 6) Mission analysis (includes course of action development).
- 7) Decision brief to commander.
- 8) Development of a synchronized OPORD.
- 9) Reproduction and distribution of OPORD to all participants.
- 10) Briefing of OPORD; understanding of order by participants.
- 11) The FRAGO planning and issue.

b. CCF (19) Direct and Lead Unit during Preparation for the Battle - The ways and means to prepare the unit so that it is ready to support the commander's concept and intent. This CCF addresses:

- 1) Commander's actions and decisions.
- 2) Directing preparation for the battle.
- 3) Issuing orders.
- 4) Communicating information.
- 5) Confirmation briefs and backbriefs.
- 6) Rehearsals.
- 7) Maintaining and updating information and force status.
- 8) Decisions to act or change ongoing actions.
- 9) Confirming IPB through the reconnaissance effort.
- 10) Determining actions to implement decisions.
- 11) Synchronizing preparation (e.g., management of time).
- 12) The TOC operations (e.g., staff integration).

- 13) Second in command responsibilities.
- 14) Continuous and sustained operations.
- 15) Communications (e.g., planning, installation and operation of system, management, site election).

c. **CCF (20) Direct and Lead Units in Execution of Battle** - The ways and means to command and control the unit's execution of the battle plan to accomplish the commander's concept and intent. This CCF addresses:

- 1) Commander's actions and decisions.
- 2) Directing the conduct of the battle.
- 3) Issuing orders.
- 4) Information distribution.
- 5) Synchronizing tactical operations (e.g., use of DST).
- 6) The TOC operations (includes CP displacement, security, survivability, battle tracking).
- 7) Continuity of command (e.g., C2 redundancy).
- 8) Second in command responsibilities.
- 9) Continuous and sustained operations.
- 10) Consolidation and reorganization.

6. **Mobility and Survivability BOS** - The ways and means that permit freedom of movement, relative to the enemy, while retaining the force's ability to fulfill its primary mission, as well as the measures the force takes to remain viable and functional by protection from the effects of enemy weapons systems and natural occurrences.

a. **CCF (21) Overcome Obstacles** - Planning for and directing actions to remove or clear/reduce natural and man-made obstacles.

b. **CCF (22) Enhance movement** - Planning for and coordinating elements providing mobility for the unit in its area of operations. This CCF addresses:

- 1) Construction and repair of combat roads and trails.*
- 2) Facilitating movement on routes. (This includes control of road traffic and control of refugees and stragglers.)*
- 3) Tracking status of routes.*
- 4) Host nation support.*

c. **CCF (23) Provide Countermobility** - Planning for and directing actions to delay,

* Normally accomplished by units supporting the division.

channel, or stop enemy offensive movement consistent with the commander's concept and intent by enhancing the effectiveness of friendly direct and indirect weapons systems.

d. **CCF (24) Enhance Physical Protection** - Planning for and directing actions that provide protection of friendly forces on the battlefield by enhancing the physical protection of personnel, equipment and weapons systems, and supplies.

e. **CCF (25) Provide Operations Security** - Planning for and directing action to deny information to the enemy about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting military operations. This CCF addresses:

- 1) Analysis to determine key assets and threats to them.
- 2) Monitoring of implementation of operations security (OPSEC) measures.
- 3) Physical security measures.
- 4) Signal security.
- 5) Electronic security.

f. **CCF (26) Conduct Deception Operations** - Taking actions in accordance with the division's or corps' deception plan to mask the objectives of tactical operations in order to delay effective enemy reaction. This CCF addresses:

- 1) Physical deception.
- 2) Electronic deception.

g. **CCF (27) Provide NBC Defense** - The avoidance of contamination; the protection of people, objects or areas from chemical or biological agents by absorbing, destroying, neutralizing, or otherwise rendering harmless or removing such agents; and the removal of radioactive material. This CCF addresses:

- 1) Decontamination of individual soldiers and equipment.
- 2) Decontamination of weapon systems and supplies.
- 3) Hasty and deliberate decontamination.
- 4) Avoidance of contaminated areas.
- 5) The NBC reconnaissance.
- 6) The NBC defensive measures.
- 7) The NBC warning.

7. **Combat Service Support BOS** - The support, assistance, and service provided to sustain forces, primarily in the area of logistics, personnel services, and health services.

a. **CCF (28) Provide Transport Services** - Planning for and directing provision or

coordination for transportation which will assure sustainment support operations in support of the unit. This CCF addresses:

- 1) Movement of cargo, equipment, and personnel by surface or air.
- 2) Loading, transloading, and unloading material and supplies.
- 3) Reporting status.

b. CCF (29) Conduct Supply Operations - Planning for and directing provision of the items necessary to equip, maintain, and operate the force during the preparation and execution phases of the battle. This CCF addresses:

- 1) Requesting, receiving, procuring, storing, protecting, relocating, and issuing supplies to the specific elements of the force.
- 2) Providing munitions to weapons systems.
- 3) Providing fuel and petroleum products to equipment and weapons systems.
- 4) Reporting status.

c. CCF (30) Provide Personnel Services - Planning for and directing all personnel-related matters to sustain the force. This CCF addresses:

- 1) Personnel administrative services.
 - a) Replacement, casualty reporting.
 - b) Awards and decorations.
 - c) Postal operations.
 - d) Promotions, reductions.
- 2) Financial services.
- 3) Unit ministry team operations.
- 4) Legal services.
- 5) Public affairs services.
- 6) Preservation of the force through safety.
- 7) Management of stress.
- 8) Reporting status.

d. CCF (31) Maintain Weapons Systems and Equipment - Planning for and directing preservation and repair of weapons systems and equipment. This CCF includes the provision of repair parts and end items to all members of the unit before, during and after the battle. Included also is doctrinal echeloning of maintenance (organization, DS, general support (GS)). This CCF addresses:

* Normally accomplished by units supporting the division.

- 1) Recovery.
- 2) Diagnosis, substitution, exchange, repair and return of equipment and weapons systems to the combined arms force.
- 3) Reporting status.

e. **CCF (32) Provide Health Services** -Planning for, directing and coordinating health services regardless of location, to promote, improve, conserve or restore the mental or physical well-being of individuals or groups. This CCF addresses:

- 1) Preventive medicine.
- 2) Field sanitation.
- 3) Mental health.

f. **CCF (33) Treat and Evacuate Battlefield Casualties** - Planning for and directing the application of medical procedures on battlefield casualties beginning with "buddy aid" through treatment by trained medical personnel. The CCF includes movement of casualties from the forward edge of the battlefield back to division-level medical facilities. This CCF addresses:

- 1) Triage of battlefield casualties.
- 2) Treatment and movement of casualties to rear (medevac).
- 3) Evacuation.
- 4) Handling and processing the remains of soldiers who have died of wounds.
- 5) Reporting status.

g. **CCF (34) Conduct Enemy Prisoners of War Operations** - Planning for and directing the collection, processing, evacuation, and safeguarding of enemy prisoners of war. This CCF addresses:

- 1) Collecting and evacuating EPW.
- 2) Searching, segregating, safeguarding, silencing, and rapid rearward movement of EPW.

h. **CCF (35) Conduct Law and Order Operations** - Enforcing laws and regulations and maintaining of unit and personnel discipline.

i. **CCF (36) Conduct Civil Affairs Operations** - Planning for, directing, and/or coordinating assigned tasks to conduct activities which encompass the relationship between the military forces and civil authorities and the citizens in a friendly or occupied country or area when U.S. military forces are present.

j. **CCF (37) Provide Sustainment Engineering** - Planning for and coordinating the actions of elements (when in the unit area), providing repair and construction of facilities and lines of communication. This CCF addresses:

- 1) Rear area restoration.*

* Normally accomplished by units supporting the division.

- 2) Construction and maintenance of lines of communication (roads, railroads, ports, airfields).*
- 3) Construction support:
 - a) Marshaling, distribution and storage facilities.*
 - b) Pipelines.*
 - c) Fixed facilities.*
 - d) Well drilling.*
 - e) Dismantlement of fortifications.*

k. **CCF (38) Evacuate Non-combatants from Area of Operations** - Planning for and directing the unit's participation in actions to use available military and host-nation resources for the evacuation of U.S. forces, dependents, U.S. government civilian employees, and private citizens (U.S. and other). This CCF addresses:

- 1) Medical support.
- 2) Transportation.
- 3) Security.
- 4) Preparation of temporary shelters.
- 5) Operation of clothing exchange facilities.
- 6) Operation of bathing facilities.
- 7) Graves registration.
- 8) Laundry.
- 9) Feeding.

l. **CCF (39) Provide Field Services** - Planning for and coordinating the provision of service logistics functions by CSS elements*. This CCF addresses:

- 1) Clothing exchange.
- 2) Shower facilities.
- 3) Graves registration.
- 4) Laundry and clothes renovation.

* Normally accomplished by units supporting the division.

- 5) Bakeries.
- 6) Feeding (rations supply, kitchens).
- 7) Salvage.

CCFs LISTED BY ECHELON

This component identifies which CCFs tend to occur in which echelon/type unit. These occurrences are ones found in research and analyses performed to date. Others may also exist.

INTELLIGENCE BOS	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(1) Conduct Intelligence Planning	X	X	X	X	X	
(2) Collect Information	X	X	X	X	X	X
(3) Process Information	X	X	X	X	X	X
(4) Disseminate Information	X	X	X	X	X	X

MANEUVER BOS	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(5) Conduct Tactical Movement	X	X	X	X	X	X
(6) Engage the Enemy with Direct Fire and Maneuver	X	X ¹				

FIRE SUPPORT BOS	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(7) Employ Mortars	X					X
(8) Employ Field Artillery	X	X	X		X	X
(9) Employ Close Air Support	X	X				

¹ CCF 6, as defined, concerns how units will engage the enemy through maneuver and direct fires. The function is performed by the element directly controlling the direct fire systems. Initial analysis indicates that this is accomplished by maneuver battalions, such as a mechanized infantry or armor Bn TF, and attack helicopter battalions. The brigade commander and brigade staff's involvement in the engagement of the enemy is through direction of the subordinate battalions. Hence, the brigade's control is not direct to the systems involved. Therefore, the brigade involvement is described within the context of CCF 18, 19, and 20. Further analysis is required.

CCFs Listed by Echelon

FIRE SUPPORT BOS (cont.)		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(10)	Conduct Electronic Collection and Jamming						
(11)	Conduct Battlefield PSYOPS						
(12)	Employ Chemical Weapons ²						
(13)	Conduct Counter Target Acquisition Operations			X			
(14)	Employ Naval Surface Fires		X				
(15)	Coordinate, Synchronize, and Integrate Fire Support	X	X	X	X	X	

AIR DEFENSE BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(16)	Take Active Air Defense Measures	X	X				X
(17)	Take Passive Air Defense Measures	X	X	X	X	X	X

COMMAND AND CONTROL BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry³
(18)	Plan for Combat Operations	X	X	X	X	X	X
(19)	Direct and Lead Units During Preparation for Battle	X	X	X	X	X	X
(20)	Direct and Lead Units in Execution of Battle	X	X	X	X	X	X

² Although U.S. national policy has renounced the use of chemical weapons, this CCF is retained because it is a function which could be performed by other nations.

³ The battle phases of plan, prepare, and execute are inherent to the ADA battery's performance of CCF 16, Take Active Air Defense Measures.

CCFs Listed by Echelon

MOBILITY AND SURVIVABILITY BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(21)	Overcome Obstacles	X	X				
(22)	Enhance Movement				X		
(23)	Provide Countermobility	X	X		X	X	
(24)	Enhance Physical Protection	X	X	X	X	X	X
(25)	Provide Operations Security	X	X	X	X	X	X
(26)	Conduct Deception Operations						
(27)	Provide NBC Defense	X	X	X	X	X	X

COMBAT SERVICE SUPPORT BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(28)	Provide Transport Service	X	X	X	X	X	
(29)	Conduct Supply Operations	X	X	X	X	X	X
(30)	Provide Personnel Services	X	X	X	X	X	
(31)	Maintain Weapons Systems and Equipment	X	X	X	X	X	X
(32)	Provide Health Service		X			X	
(33)	Treat and Evacuate Battlefield Casualties	X	X	X	X	X	X
(34)	Conduct EPW Operations		X				
(35)	Conduct Law and Order Operations						
(36)	Conduct Civil Affairs Operations						
(37)	Provide Sustainment Engineering						
(38)	Evacuate Non-combatants from Area of Operations						
(39)	Provide Field Services					X	