



**U.S. Army Research Institute
for the Behavioral and Social Sciences**

Research Report 1919

**Soldiers' Toolbox for Developing Tactics, Techniques,
and Procedures (TTP)**

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February 2010

**U.S. Army Research Institute
for the Behavioral and Social Sciences**

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SOLDIERS' TOOLBOX FOR DEVELOPING TACTICS, TECHNIQUES, AND PROCEDURES (TTP)

EXECUTIVE SUMMARY

Research Requirement:

As the Army continues its sweeping transformation, tactical units are receiving new warfighting capabilities including materiel, organizational changes, and doctrine at a rapid pace. These capabilities require new tactics, techniques, and procedures (TTP) to optimize the units' combat effectiveness. Increasingly, the job of figuring out how to employ the new capabilities and integrate them with existing capabilities falls to Soldiers in the units. The Army needs an innovative method—one that is structured, flexible, and Soldier-friendly—to guide units as they develop effective TTP. The goal of this research effort was to create a low-overhead, Soldier-friendly method to help units rapidly develop and refine TTP.

Procedure:

The research team built on previous methodology (Topolski, Leibrecht, Kiser, Kirkley, & Crabb, 2009) to create a flexible, broadly applicable TTP development method. They blended knowledge elicitation techniques and simulation-based vignettes to produce an adaptable set of forms and job aids organized in a *Development Support Package* (the toolbox). Test sessions (trial implementations) with four groups of Soldiers were conducted in a laboratory setting. Measures of effectiveness along with Soldier feedback were gathered during the tests.

Findings:

When groups of Soldiers used the toolbox to develop focused TTP, the method proved to work well with a variety of missions and tactical conditions. The clarity and quality of the tools as well as the effectiveness of the method were assessed using multiple measures. The Soldiers gave positive ratings of the effectiveness of the method's various components. The quality of the resulting TTP increased across exercises (practice effect) and groups (resulting from toolbox improvements between groups). Lessons learned about various aspects of the methodology are included.

Utilization and Dissemination of Findings:

The products of this research support the establishment of a structured, group-focused, and simulation-driven approach that elicits warfighting ideas from Soldiers. The toolbox is intended to help unit leaders and Soldiers as they work to enhance their combat effectiveness. They can utilize the flexible methodology as a road map for developing and implementing focused TTP. The results of the research have been briefed to leaders of the Future Force Integration Directorate. Through their involvement in this project's trial implementations, personnel of the U.S. Army Armor Center and School have already become familiar with the new TTP development method.

SOLDIERS' TOOLBOX FOR DEVELOPING TACTICS, TECHNIQUES, AND PROCEDURES (TTP)

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SOLDIERS' TOOLBOX FOR DEVELOPING TACTICS, TECHNIQUES, AND PROCEDURES (TTP)

Introduction

As the Army continues its dramatic transformation, tactical units are receiving many new warfighting capabilities at a rapid pace, including major changes in materiel, organization, and doctrine. These capabilities require new tactics, techniques, and procedures (TTP) to optimize the units' combat effectiveness. Increasingly, the job of figuring out how to utilize the new capabilities and integrate them with existing capabilities falls to Soldiers in the units. The Army needs an innovative method—one that is structured, flexible, and Soldier-friendly—to help units rapidly develop effective TTP.

In a previous research effort (Topolski, Leibrecht, Kiser, Kirkley, & Crabb, 2009), the U.S. Army Research Institute (ARI) developed a novel method to structure the TTP development process for new systems that are not yet mature. Based on Shadrick, Lussier, and Hinkle's (2005) flexible method of cognitive task analysis (FLEX), the flexible method for developing TTP (FLEX-TTP) method is an iterative and vignette-driven approach that harnesses knowledge elicitation techniques with groups of military subject matter experts (SMEs). The goal of this research effort was to adapt and expand the FLEX-TTP method to produce a low-overhead toolbox for use by Soldiers in tactical units.

This report describes the methodology created to facilitate unit development of focused TTP in response to new warfighting capabilities. It contains the complete package of TTP development materials that include process guides, job aids, and other working materials. It is intended to help unit leaders and Soldiers as they work to enhance their combat effectiveness.

Background

Faced with a task or challenge, what is the best course of action to take? How can one proceed to maximize gains (achieving a goal quickly, efficiently) while minimizing costs? These questions arise routinely and take on added significance in the military environment, where costs include life and death risks for troops and civilians. To function effectively in the contemporary operational environment (COE), Soldiers need TTP and tactical standing operating procedures (TSOP), which specify the "who," "what," "where," "when," and "how" of warfighting. Soldiers bear an important responsibility to develop both TTP and TSOP, frequently under difficult circumstances. The challenges involve "complex cognitive systems" comprised of individuals, teams, and units (Hoffman & Woods, 2000). The TTP are developed for novel situations which may involve the latest equipment.

The unprecedented rate of introducing new technologies into the Army has changed the manner in which TTP and TSOP are developed. Traditional methods for developing TTP/TSOP usually rely on investigation and testing by experts and analysts, as well as operationally focused experiments. These methods are neither appropriate given the rapid pace of change in today's Army nor are they readily adaptable for unit use. In tactical units, TTP/TSOP are typically developed as needed, "on the fly" with little formal guidance or structure. According to Army convention (U.S. Department of the Army, 2005), TTP and TSOP play a central role in troop

leading procedures (TLP), especially mission planning and rehearsal. However, no guidance is provided on how to develop TTP. In fact, the authors have been unable to find an established formal method for TTP development. A procedurally sound, cost effective and “Soldier friendly” method for developing TTP/TSOP is required to keep pace with rapidly emerging changes in warfighting capabilities. A more formal way of creating and documenting TTP may increase the effectiveness of the TTP/TSOP outcomes and facilitate the documentation of “tribal knowledge.” Tribal knowledge consists of undocumented procedures and information possessed within a group, but not readily understood to individuals outside of the group.

Cognitive task analysis (CTA) and knowledge elicitation (KE) methods are designed to measure how individuals operate in systems, examine factual knowledge stores, maximize cognitive and behavioral performance, and illuminate decision making that underlies expert performance (Crandall, Klein, & Hoffman 2006). Both CTA and KE methods have been shown to be reliable and effective across a wide range of situations, to include improving performance of command and control centers (Riley, Endsley, Bolstad, & Cuevas, 2006), teaching spatial reasoning skills (Lajoie, 2003), and crafting system design recommendations (Kaber, Segall, Green, Entzian, & Junginger, 2006). Furthermore, numerous models of CTA and KE have been proposed and implemented (for reviews, see Crandall et al., 2006; Wei & Salvendy, 2004).

The ARI research unit at Fort Knox, KY, developed the FLEX method (Shadrick et al., 2005) as an iterative interview and vignette-based KE approach for exploring future concepts. Topolski et al. (2009) fashioned a specific extension of the FLEX method (FLEX-TTP) for developing TTP for new technologies. The FLEX-TTP method incorporated single-source TTP development/vetting sessions and multi-source vetting of previously developed TTP (see Figure 1). Development and refinement of TTP occurred through KE sessions following vignette based computer simulations. The method was found to be effective when implemented by experienced KE personnel. But the suitability of the FLEX-TTP method for independent use by units was never tested.

To ensure rapid and effective employment of new warfighting capabilities, units need TTP/TSOP development methods that structure activities and guide the process, while remaining flexible enough to accommodate a wide range of conceptual constructs. The fast-paced infusion of futuristic systems was the initial impetus for devising a method for generating TTP, but there is a need for tools that Soldiers can apply in nearly any circumstance where TTP or TSOP are required. Robust TTP/TSOP development methods should offer the potential to be employed by a broad audience. The current research pursued structured methods that will enable Soldiers and units to generate TTP without special external support, while remaining flexible enough to accommodate diverse changes in warfighting capabilities.

As more fully described in the remainder of this report, this research effort resulted in a set of stand-alone tools called the development support package (DSP) (documented in Appendix B) that enable Soldiers to autonomously create TTP. The DSP begins with an overview of the Soldier tools for developing TTP (ST-TTP) method and a scenario-based illustration of its utility. The three primary sections of the DSP provide orientation materials and guides to help leaders and facilitators understand the ST-TTP method, fully perform their duties, and achieve the outcome goals. Three supporting appendices provide: resources to help Soldiers understand the

ST-TTP method and the supporting simulation; a series of job aids to be used in TTP development; and, tactical materials designed to provide Soldiers the fundamental knowledge necessary for executing missions, such as a road to war, an operations order, and VBS2 graphics. The DSP was packaged in paper and electronic format to increase its usability and accessibility.

Technical Objectives

The goal of the work reported here was to create a stand-alone package that enables Soldiers to construct TTP and/or TSOP for new warfighting capabilities. To achieve this goal the research team pursued the following technical objectives:

- Develop instruments and measures that units can use to generate and revise TTP/TSOP.
- Test and refine the TTP/TSOP generation instruments and measures with Soldiers.
- Document the development, testing, and refinement of the instruments and measures.

Method

Overview

The purpose of this project was to develop and test a set of tools which allows soldiers to engage in rapid and effective peer-facilitated TTP development. The approach was to refine, adapt and extend the FLEX-TTP method (Topolski et al., 2009) to produce a set of instruments and measures that Soldiers and units can use to generate and revise TTP/TSOP across multiple modes of development (e.g., map exercise [MAPEX]/table top wargaming, simulation-based exercises, and live exercises). The research was executed in the following stages:

- Development of simulation vignettes.
- Development of Soldier-friendly tools and procedures.
- Soldier-in-the-loop testing of the tools and procedures.
- Revision of the package of tools.

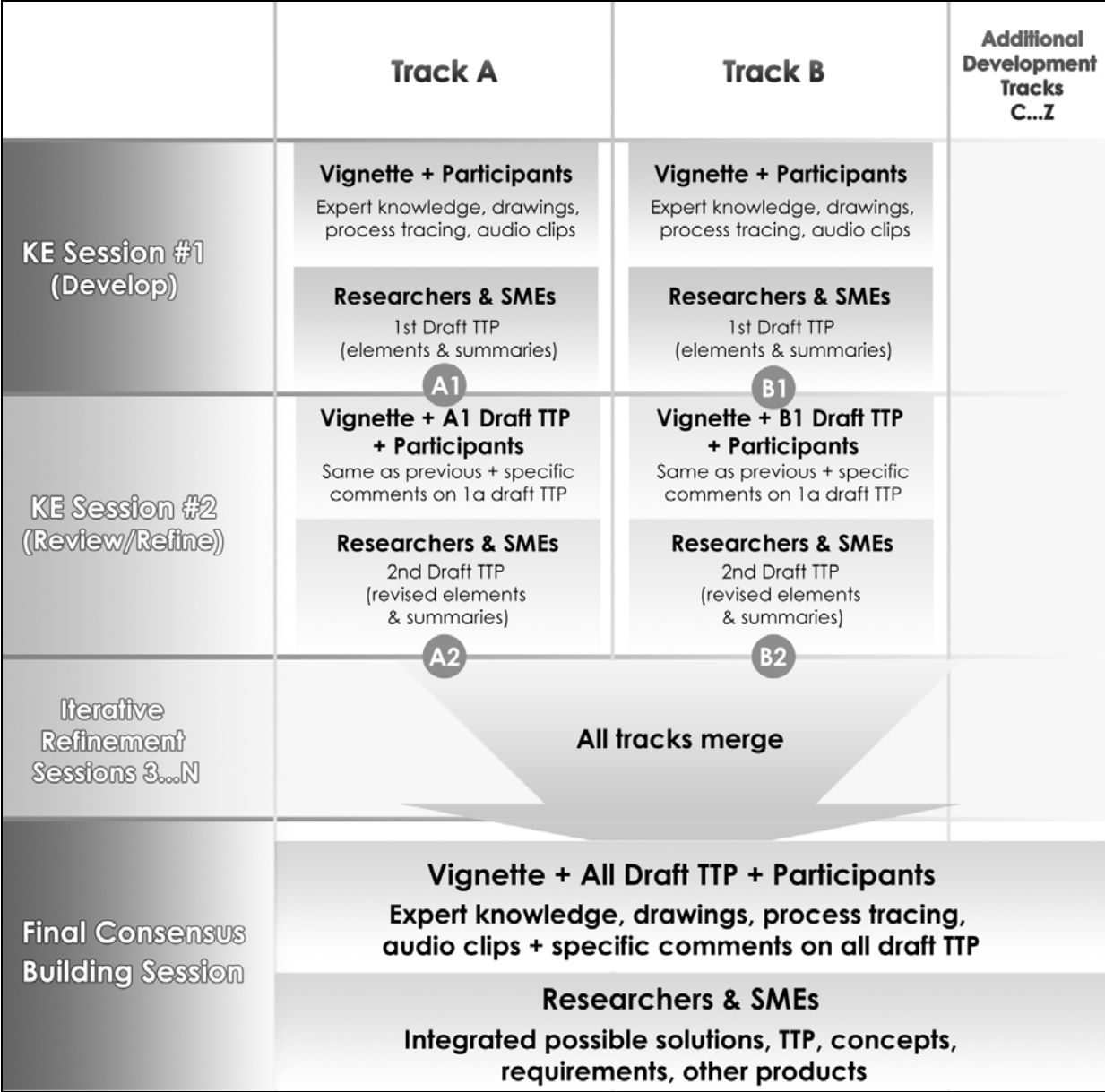


Figure 1. The FLEX-TTP method (taken from Topolski et al., 2009).

The execution of the research stages required the combined efforts of military SMEs, behavioral scientists, CTA experts, and simulation programmers. The research team relied on the simulation-based vignettes produced previously (Topolski et al., 2009) that reflected Future Force concepts. A Soldier-friendly KE process was developed by adapting the FLEX-TTP CTA method. Tailored KE approaches and tools were constructed to ensure that TTP development sessions were adaptable for multiple modes and could facilitate both generation and review/refinement processes. Additionally, the KE approaches were shaped according to the peer-to-peer (P2P) methods outlined by Costanza, Cooper, Leibrecht, and Sanders (2009) to ensure balanced contributions from participants during small group interactions. The quality of

the tools and the effectiveness of the process were assessed in tests by means of participants' written and oral assessments, material revisions, and the quality of the TTP produced.

Simulation Vignettes

Simulation platform. While the ST-TTP methodology could be implemented on a wide range of simulation platforms, Virtual Battlespace 2 (VBS2) was selected for this research. The VBS2 package provides multiple terrain options, a full range of weaponry, tactical realism, and adaptive environments deemed desirable by the research team. To determine if the ST-TTP method could handle diverse situations, four separate scenario-based vignettes were constructed in VBS2. Each vignette was designed to last 15-20 minutes. Table 1 characterizes the vignettes based on the tactical parameters adapted from Topolski et al., (2009).

Table 1

Parameters Incorporated in Each Vignette

Vignette	Mission	Unit	Terrain	Enemy	Enemy Knowledge
1	Cordon and Search	Bravo Co	Wooded	Attican ADA Section	No surprise
2	Raid	Bravo Co	Urban	Insurgent Squad	Surprise
3	Screen	Bravo Co	Hills	Attican Platoons	Surprise
4	Movement to Contact	Bravo Co	Open Ground	Attican Platoon	No surprise

Note: See Appendix A for a list of acronyms.

Vignette construction. Vignette construction followed the process outlined by Topolski et al., (2009) and the best practices outlined by Schmitt (1996). The vignettes underwent several cycles of development and subsequent vetting by SMEs to ensure realism and doctrinal accuracy. To aid in mission planning and development, battalion orders accompanied each vignette. However, to permit adequate and realistic testing of the TTP, the vignettes contained a healthy dose of uncertainty and friction (Schmitt, 1996).

The vignettes were deigned to be adaptable in order to permit iterative testing. A set of TTP could be tested multiple times under the same mission, enemy, terrain and weather, troops and support, time available, civilian considerations (METT-TC) conditions. Alternatively, one or more of the METT-TC conditions could be modified across multiple iterations to examine the suitability of the TTP. For example, enemy location and strength, time to contact, number and placement of improvised explosive devices, weather, and so on could vary across different vignettes and iterations of the same vignette. While the ST-TTP method could be used at any level, and to develop TTP for a wide spectrum of challenges, the vignettes used in the current research focused on echelons at or below the battalion level. In addition, the ST-TTP vignettes were limited to developing TTP which incorporated the use of Unmanned Aerial Vehicles (UAVs) and Small Unmanned Ground Vehicles (SUGVs).

Development of Tools

A major objective of the current research was to fashion a set of stand-alone tools that would enable Soldiers to autonomously create TTP. The stand-alone documents were assembled to produce a *Development Support Package* (DSP). The documents were crafted by analyzing which components of the FLEX method (Shadrick et al., 2005), FLEX-TTP (Topolski et al., 2009), best practices for brainstorming (Isaksen & Gaulin, 2005; Lamm & Trommsdorff, 1973; Graham, 1977; Madsen & Finger, 1978; Street, 1974), and P2P methods (Costanza et al., 2009) could be reasonably employed by Soldiers with no previous KE experience.

The FLEX-TTP method relies on experienced KE personnel to elicit, record and transcribe oral responses. The method is limited in its utility since CTA personnel are needed to conduct the KE sessions and transcribe the dialogue. Further, the FLEX-TTP method is resource demanding in that it relies on multiple groups of SMEs to repetitively vet TTP. Therefore, those components of the FLEX-TTP method were omitted from the DSP. The following elements were retained and enhanced:

- Detailed guidance for iterative internal development, vetting and revision.
- Streamlined recording of data.
- Soldier-friendly terminology and nomenclature.
- Applicability to a broad array of TTP development situations.

The elimination of experienced KE personnel necessitated modifying the FLEX-TTP method toward a more self-guided approach for generating TTP. Brainstorming is an established method for problem-solving and generating innovative ideas (Graham, 1977). Concerns have arisen that group brainstorming is less effective than individual brainstorming. Depending upon the directions provided, group brainstorming has been shown to produce fewer ideas and less novel ideas (Mullen, Johnson, & Salas, 1991; Dugosh, Paulus, Roland, & Yang, 2000; Lamm & Trommsdorff, 1973; Madsen & Finger, 1978). Some of the factors that have been identified for this effect are social loafing, large group size, fear of being ridiculed for suggesting odd/incorrect solutions, failure to attend to others' ideas, and demands on short-term memory (e.g., a participant may forget his answer while listening to another participant describe his). With these concerns in mind, the DSP included a list of best practices for both facilitators and participants:

- Take 5-10 minutes to have every member write down his own ideas.
- Record all ideas without judgment.
- Try to generate/create some unique solutions.
- Encouraged contributions by all members.
- Identify ideas that can be combined.
- Review, vet, and prioritize ideas.

Costanza et al.,'s (2009) P2P training facilitator's guide helps Soldiers conduct KE sessions wherein experienced warfighters share knowledge and lessons learned. The facilitator does not act as a lecturer, but as a guide, overseeing the Soldiers' knowledge sharing. The P2P facilitator's guide contains a comprehensive list of goals, duties, materials, and techniques outlined in step-by-step fashion. The guide also provides a list of best practices and information

on how to avoid, identify and correct shortcomings. The DSP was modeled after the P2P facilitator's guide in both structure and content, as follows:

- An initial “real life” scenario to achieve buy-in for Soldiers.
- Decision-making flow charts.
- Bottom line up front (BLUF) and bullet point formatting.
- Examples and instructions with the rationale behind them.

Based on these considerations, the research team fashioned the DSP using an iterative draft-review-revise process. The team’s SMEs reviewed each separate component of the DSP. Following each review the SMEs' recommendations were incorporated into the DSP. After several revisions, the separate components were integrated to create the DSP, which was then reviewed in its entirety. The DSP was utilized and vetted by Soldiers during the research project. After each experimental session Soldiers' feedback was used to refine the DSP, which was once again reviewed and approved by SME.

The target audience for the DSP is any unit leader who needs to develop TTP. The DSP provides a “soup-to-nuts” guide on TTP development. The personnel required to conduct the TTP development consist of the unit leader, 2-4 Soldiers from his/her unit, and a person outside of the unit to serve as a facilitator. The unit leader should request his immediate superior to designate a Soldier of equal or higher rank to serve as facilitator during the TTP development exercises. Table 2 characterizes the major sections of the DSP.

The resulting DSP (Appendix B) consists of an *Executive Summary*, three main sections, and three appendices. The *Executive Summary* provides an overview of the ST-TTP method and a scenario-based illustration of its utility. The three main sections include an *Introduction*, a *Leaders Guide*, and a *Facilitators Guide*. These sections are designed to enable the key players to understand the ST-TTP method, fully perform their duties, and achieve the outcome goals. The guides are constructed to serve as stand-alone documents. The *Orientation Materials* appendix (see Appendix B-A) provides resources for enabling Soldiers to understand the ST-TTP method and the VBS2 simulation. These resources include background information for participants, VBS2 orientation, and sample VBS2 graphics. The *Tools and Forms* appendix (see Appendix B-B) contains the job aids used in TTP development—*Facilitator’s Execution Plan*, *TTP Development/Revision Worksheets*, and *TTP Conditions and Results Summary Worksheet*. The *Example Tactical Materials* appendix (see Appendix B-C) contains materials to endow Soldiers with the fundamental knowledge necessary for executing tactical missions—road to war, base operation order, fragmentary orders, and VBS2 graphics. Including visual aids is consistent with cognitive research indicating graphs and figures increase retention of concept development (Larkin & Simon, 1987; Gyselinck & Tardieu, 1999). The Example Tactical Materials serve only as an example of the possible materials one might use to familiarize the Soldiers with the mission; these materials would need to be replaced with items appropriate for the specific TTP being developed. The DSP was packaged electronically and in paper format to increase its usability and accessibility. The DSP is provided in Appendix B available in the DVD contained in the sleeve attached to the back cover of this report.

Table 2

Primary DSP Components and Key Employment Parameters

DSP Component	Purpose	Primary Users	Timetable for Employment
Executive Summary	Provide overview of DSP	Unit Leader and Facilitator	At least one week prior to TTP development exercises
Introduction	Provide background on frames, roles, process and duties	Unit Leader and Facilitator	At least one week prior to TTP development exercises
Leaders Guide	Outline leader's role and duties	Unit Leader	At least one week prior to TTP development exercises
Facilitators Guide	Outline facilitator's role and duties	Facilitator	At least one week prior to TTP development exercises
<i>Appendix A</i>			
Orientation Materials	Introduce process & simulation setting	Soldiers	At least two days prior to TTP development exercises
<i>Appendix B, Tools and Forms</i>			
Facilitator's Execution Plan	Provide step-by-step job aid/script	Facilitator	During TTP development exercises
TTP Development/Revision Worksheets	Capture TTP inputs and outcomes	Unit Leader and Soldiers	During TTP development exercises
Conditions and Results Summary Worksheet	Compile final TTP & METT-TC conditions	Unit Leader	During final stage of TTP development exercises
<i>Appendix C</i>			
Example Tactical Materials	Specify METT-TC factors for each mission	Unit Leader, Facilitator and Soldiers	Create at least one week prior to TTP development exercise; use during TTP development exercises

Soldier in the Loop Testing

Participants. Twenty active duty Soldiers (officers and noncommissioned officers) representing platoon through battalion echelons participated in the test sessions. Four Soldiers were assigned as facilitators, four as Company Commanders (Co Cdrs), and 12 as Platoon Leaders (PLs).

Facilities. The TTP-focused after action reviews (AARs) were conducted in a small conference room containing an easel and butcher paper. Simulation exercises were conducted on computer workstations located in two separate rooms. The Co Cdr and his workstation operator worked in one room, while in a separate room the three PLs sat at separate workstations with individual operators. To emulate tactical communications, all participants communicated via headset and microphone (voice-over-internet protocol).

Schedule. Data collection was conducted over a one month period. During two separate weeks within that period, four sessions (6-8 hours each) occurred at a single site. Facilitators were given an oral briefing and a copy of the DSP to review 1-5 days in advance of the testing session. Figure 2 depicts the general plan for a daily schedule as originally envisioned.

Procedures. Participants were run in groups of four with one serving as the Co Cdr and three as PLs. To increase external validity, facilitators controlled each session. Research team members were on hand to take notes and address any questions or issues. After the final simulation event, participants provided written and oral feedback. Once the data collection process was complete, all data was cataloged and inventoried. Working independently, a member of the research team and a research assistant entered all the data into spreadsheets. The two spreadsheets were compared with one another to ensure total accuracy.

Data collection. Data collection focused on assessing the quality and usability of the DSP and the effectiveness of the ST-TTP procedures. Table 3 provides an overview of the data collection instruments completed by participants, facilitators, researchers, and simulation operators. Appendix C contains the primary the data collection instruments.

Data analysis. Data analysis was performed using a mixed method approach (Creswell, 2002). Quantitative measures included frequency counts and averaged ratings. The counts and ratings were used to measure the perceived quality of the materials and the process. Qualitative measures included participants' spoken and written feedback. The feedback was recorded, categorized, and used to guide revision of materials.

Revision of DSP

Many of the materials contained in the ST-TTP DSP were adapted from useful items developed in the FLEX-TTP project (Topolski et al., 2009). In the current effort, the adaptation and development process leveraged (a) information obtained from literature reviews, (b) human factors design principles, (c) analysis of the probable unit implementation environment, and (d) vetting by military SMEs. The team fashioned the DSP using a multi-stage, iterative process. The team members first reviewed the FLEX-TTP materials to determine which items were still viable for the new methodology. They then adapted or crafted specific materials within their area of expertise to operationalize the ST-TTP method. Once Soldier-in-the-loop testing started, the revision of the DSP was driven by feedback from facilitators and participants, recommendations from VBS2 operators, and insights of the research investigators.

Step 1	Orientation	
	5 min	Purpose
	5 min	Capabilities
	5 min	Method/Process
	40 min	Orientation and Tactical Situation
	10 min	Practice Table Top Exercise
	30 min	Practice Simulation Exercise
	95 min	
Step 2	Table Top Exercise #1	
	10 min	Troop Leading Procedures
	15 min	Wargaming
	20 min	TTP-Focused AAR
	45 min	
Step 3	Simulation Exercise #1	
	10 min	Troop Leading Procedures
	15 min	Execution
	20 min	TTP-Focused AAR
	45 min	
Step 4	Table Top Exercise #2	
	10 min	Troop Leading Procedures
	15 min	Wargaming
	20 min	TTP-Focused AAR
	45 min	
Step 5	Simulation Exercises #2 thru #4	
	10 min	Troop Leading Procedures
	15 min	Execution
	20 min	TTP-Focused AAR
	15 min	Execution (Optional)
	20 min	TTP-Focused AAR
	15 min	Execution (Optional)
	20 min	TTP-Focused AAR
	115 min	
Step 6	AAR Process	
	60 min	
Total Time Required		
	6-7 hr	

Figure 2. Planned schedule for a single test session.

Table 3

Data Collection Instruments Used for Testing Purposes

Instrument	Purpose
1. Facilitator Comments Sheet (see page C-2)	Form completed by the facilitator prior to TTP development session to capture reactions to the DSP and the method
2. Soldier Profile Questionnaire (see page C-4)	Demographic survey completed by facilitators and participants to document relevant background information
3. TTP Development/Revision Worksheet	Form used by facilitators and participants to develop, record, review, rate, and refine TTP
4. Facilitator Feedback Questionnaire (see page C-6)	Likert-scale and open ended survey form completed by facilitators to provide feedback on ST-TTP process and procedures
5. Participant Feedback Questionnaire (see page C-9)	Likert-scale and open ended survey form completed by participants to provide feedback on ST-TTP process and procedures
6. Significant Problems Log (see page C-12)	Form used by facilitators and simulation operators to record technical and procedural problems and their impact
7. Master Facilitator/Participant List	Form used by researchers to identify facilitators and participants
8. Oral feedback notes	Notes of spoken feedback recorded by hand for each data collection session

As an example, the VBS2 programmers changed the materials and instructions from the previous project’s simulation system (Objective Force-OneSAF Objective System) to VBS2. The SMEs next examined the materials to ensure that the information and packaging, to include Soldier-friendly jargon, would foster “buy-in” from the participants. The behavioral scientists and CTA experts then reviewed the materials to verify that the modifications were consistent with the goals of the project. The materials cycled through the team members until consensus was reached. The DSP was then introduced to Soldiers who participated in the test events. Based upon Soldiers' feedback the research team modified the materials between test sessions. The modifications were accomplished according to the multi-stage, iterative process outlined above.

Results and Discussion

This section presents and discusses the results of the development efforts, including the feedback obtained from Soldiers during testing. The acceptability and effectiveness of the TTP development toolbox were assessed using multiple measures. Each measure addressed a separate aspect of the materials and methodology. The following topics will organize the presentation:

- Facilitators and Participants.
- Clarity and Quality of Materials.
- Implementation Effectiveness.
- Methodology Improvements.
- Comparative Considerations.
- Lessons Learned.

As appropriate, the data collection method will be recapped to frame the results. In addition, the data analysis method will be described where warranted. The working conclusions reached by the research team will be presented for each aspect of the methodology examined, to set the stage for the following section.

Facilitators and Participants

Soldier Profile Questionnaires were used to assess participants' and facilitators' relevant military history and experience. A total of 4 facilitators and 16 participants took part in the testing, with 4 of the participants assigned as Co Cdrs and 12 serving as PLs. The distribution of facilitators and participants in terms of rank is depicted in Figure 3. Table 4 presents background data for facilitators and participants, including occupational specialty and length of service. The average number of months in service was 141.5 for facilitators, 107.0 for Co Cdrs, and 140.8 for PLs. The longest time in service was 244 months and the shortest was 47 months (see Table 4). Overall, 100% of facilitators and participants indicated they had previous experience developing TSOP or TTP, and 61.1% reported they were familiar with the new technologies formerly associated with the Future Combat Systems (FCS) and Spin Outs, but only 22.2% reported they had prior experience with unmanned vehicles. One facilitator indicated he had extensive training and job experience as a facilitator.

Clarity and Quality of Materials

The clarity and quality of the written materials were assessed through Soldiers' ratings, as well as written and oral statements. The research team used this feedback to modify the materials between the development sessions. We will review the Soldiers' evaluations and the subsequent material modifications for the DSP, and then consider the various sections of the DSP.

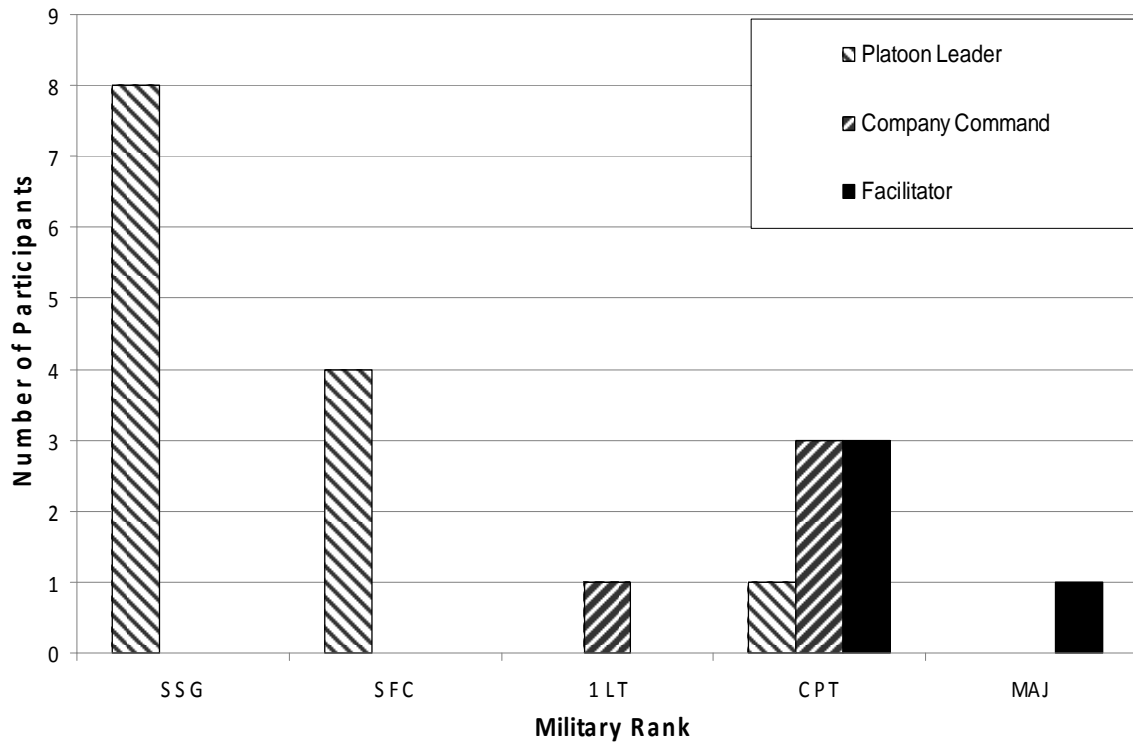


Figure 3. Distribution of military ranks according to assigned role.

Development Support Package. Facilitators were instructed to complete a comment sheet to provide quantitative and qualitative feedback on the DSP prior to the development session. Several common themes emerged:

- 1) Overall the package was clear and provided sufficient information.
- 2) The liberal use of diagrams and images was well received and encouraged.
- 3) On average, facilitators spent approximately six hours reviewing the materials.
- 4) More time needs to be allocated to preparation, possibly one full day scheduled one week prior to the development session.

Table 4

Military Background of Participants and Facilitators

Session	Rank	MOS/Branch	Time in Svc (mos)	Role
1	1LT	19A (Armor)	78	Cdr
	SSG	42A (Adjutant Gen)	149	PL
	SSG	31B (Mil Police)	153	PL
	SFC	11B (Infantry)	115	PL
	CPT	88A (Transportation)	119	Fac
	CPT	19A (Armor)	47	Cdr
2	SFC	19K (Armor)	180	PL
	SFC	92Y (Quartermaster)	244	PL
	SSG	19K (Armor)	107	PL
	CPT	14A (Air Defense)	68	Fac
3	CPT	19A (Armor)	91	Cdr
	SSG	19K (Armor)	130	PL
	SSG	19D (Cavalry)	101	PL
	SSG	19K (Armor)	134	PL
	CPT	19A (Armor)	198	Fac
	CPT	11A (Infantry)	212	Cdr
4	SSG	19K (Armor)	150	PL
	SSG	19D (Cavalry)	110	PL
	SFC	19D (Cavalry)	116	PL
	MAJ	19A (Armor)	181	Fac

Note: See Appendix A for a list of acronyms.

Immediately following each test session, the facilitator and participants provided feedback on the materials. The overall ratings and comments from facilitators and participants were positive. Six items used a five-point Likert scale, with “1” indicating the least favorable rating and “5” the most favorable (“3” being neutral), to assess the clarity and quality of the materials. Facilitators' average rating across the items was 3.61 ($SD=.64$), with 69.05% of the ratings above three and 7.14% below three. Participants' average rating was more positive ($M=4.14$, $SD=.72$), with 82.29% of the ratings above three and 1.04% below three. Notably, there was a general trend for increased ratings as the sessions progressed, indicating that the modifications made to the materials between the sessions improved their quality (see Figure 4).

Executive Summary, Introduction, Orientation Materials, and Tactical Materials. The oral feedback from facilitators and participants indicated these materials were well received, and they did not undergo significant changes.

Leader's and Facilitator's Guides. Based on comments from the facilitators and leaders, both guides were refined as follows:

- Definitions, limitations, and examples of TTP were added to clarify the end state.
- Best practices for brainstorming and group facilitation were added.
- Additional figures and flow charts were incorporated to enhance visual learning.

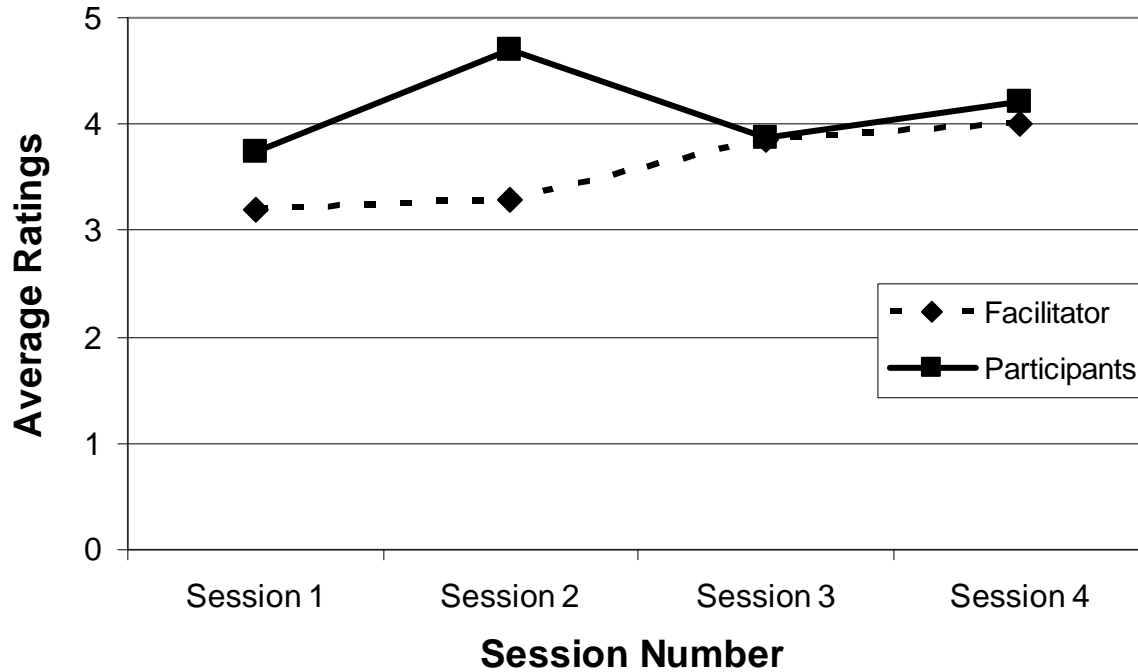


Figure 4. Average ratings of DSP materials according to session and role.

Facilitator’s Execution Plan. During the first session it became clear that the Facilitator’s Execution Plan had insufficient procedural detail. Specifically, there was too little guidance on when and how to utilize the *TTP Development/Revision Worksheets*. The job aid was revised following the first session to address these limitations. Feedback from subsequent facilitators indicated that the modifications adequately resolved the ambiguities. Additional modifications were made to the form based on changes made to the *TTP Development/Revision Worksheets*.

TTP Development/Revision Worksheets. This component underwent the greatest revision. The initial version was designed as a brief form to capture written TTP for each of the specific METT-TC conditions. The major revisions and justifications were as follows:

- Given facilitators’ comments on the style and level of information, more explanation of TTP, limitations of TTP, and brainstorming was included to ensure Soldiers would receive that basic information.
- Based on feedback from facilitators and participants, the final version of the form was streamlined to emphasize the BLUF and bullet format.
- Instructions for constructing a graphic representation of the TTP were added. Participants reported the graphic representation provides a quick, easily processed summary of the TTP and situational variables.

- A *TTP Conditions and Results Summary Worksheet* was added to document the TTP development conditions (primarily METT-TC factors) and outcomes.

Implementation Effectiveness

Implementation effectiveness was assessed by measuring the (a) research team's ability to implement the methodology and (b) perceived effectiveness of the methodology for eliciting knowledge. These dimensions were measured by:

- Significant procedural and technical problems recorded on daily logs.
- Soldiers' ratings of methodology and implementation effectiveness plus investigators' insights.
- Soldiers' comments and other qualitative feedback.

Procedural and Technical Problems

For the purposes of the project, a significant problem was defined as any incident during a session that deviated from the prescribed procedure and could adversely affect the data. For instance, significant problems included simulation workstation crashes, participants' late arrivals or early departures, equipment related problems, and so forth.

Data from the significant problems logs were grouped according to five general areas—simulation, participants, equipment, and timing. The frequency and types of problems are discussed in the following paragraphs.

Simulation-related problems. The research team conducted 14 simulation events (four practice and 10 development/revision exercises) across the four test sessions. Among the 14 events, a significant problem occurred 6 times (42.86%). Two of those significant problems could be traced back to user error (a participant's inability to effectively navigate the virtual environment resulting in their non-inclusion for an event). Three other significant problems were attributed to the performance of the simulation or computer systems: 1) during one simulation the mission cache file became corrupted causing one of the stations to disconnect, 2) during one simulation the server crashed (reason undetermined) requiring a reboot of the entire system, and 3) during one simulation the system crashed when each participant attempted to employ both their SUGVs and UAV simultaneously. Finally, one session was aborted when conditions were switched to nighttime, but night vision capabilities were not incorporated into the switch. While 3 of 14 (21.43%) significant problems could be attributed to VBS2 performance, each of these significant problems was minor and resolved within 10 minutes. Overall, VBS2 received very favorable reviews from the system operators. Additional participant training on the simulation in advance of the development session would likely increase proficiency and reduce user errors.

Participant-related problems. Participants arrived late in 2 of 4 sessions (50%). In spite of starting late, the research team was able to complete the planned sessions within the scheduled time, indicating that there was sufficient flexibility built into the daily schedule.

Equipment-related problems. A significant equipment-related problem occurred during one exercise when a faulty headset was replaced.

Timing-related problems. Late arrival by participants was the primary cause of timing-related significant problems. Although late participant arrivals translated into late start times in 2 of the 4 sessions (50%), the delays did not dramatically impact the daily schedule even when combined with delays related to the simulation. The research team compensated for the late arrivals by abbreviating the review of the road to war. Each exercise was completed according to the scheduled time allocated (+/- 10 minutes), and each daily session was completed on time.

Participants' Perceptions and Investigators' Insights

Research team observations and feedback questionnaires for participants and facilitators were used to assess the perceived effectiveness of the current TTP development method. Both groups rated several components of the methodology on five-point scales (strongly disagree to strongly agree). As necessary, scores on the five-point scale were transformed so that higher scores always reflected positive ratings. This data was analyzed according to:

- General findings.
- Development component.
- Session number.

General findings. Written and oral comments indicated participants believed the current method would be effective for generating TTP, documenting “tribal knowledge,” and training new Soldiers. Investigators observed that facilitators varied in their approach to moderating a session. For example, some facilitators read the script verbatim while others ignored the script and took more of a BLUF approach to describing the process. Even with variations in facilitation style and participants' knowledge and experience, the investigators concluded the current method was effective for generating and refining TTP. During the daily sessions, the investigators noted that facilitators conveyed the core information regarding TTP development. Participants rated the effectiveness of their TTP after each TTP-focused AAR. As seen in Figure 5, the ratings showed a curvilinear function, with an initial overestimation of the TTP effectiveness, then a substantial drop, followed by a steady increase. These results show that the current method enabled Soldiers to develop, test, and refine TTP.

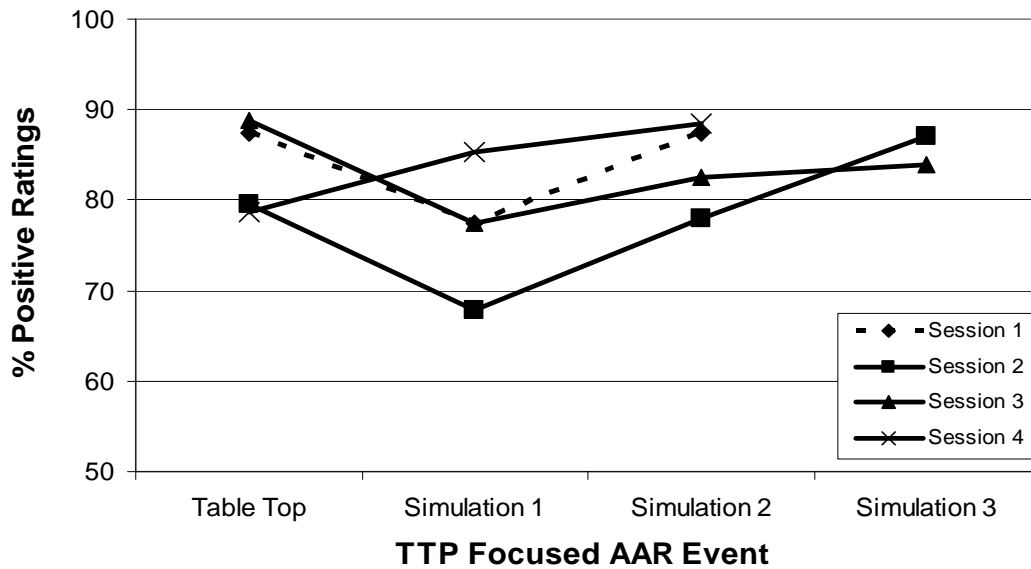


Figure 5. Percent of positive ratings of TTP quality, by event and session.

TTP development components. A series of pair-wise comparisons was conducted between facilitators' and participants' ratings across the remaining six dimensions of the ST-TTP method (facilitator, orientation, table top, simulation, procedure, and schedule). The results showed that facilitators rated themselves lower ($M=4.11$, $SD=.22$) than participants rated the facilitators ($M=4.56$, $SD=.33$), $t(18)=2.60$, $p=.02$. No other comparisons approached significance (all p 's $>.05$). As a result, the data for both groups were combined.

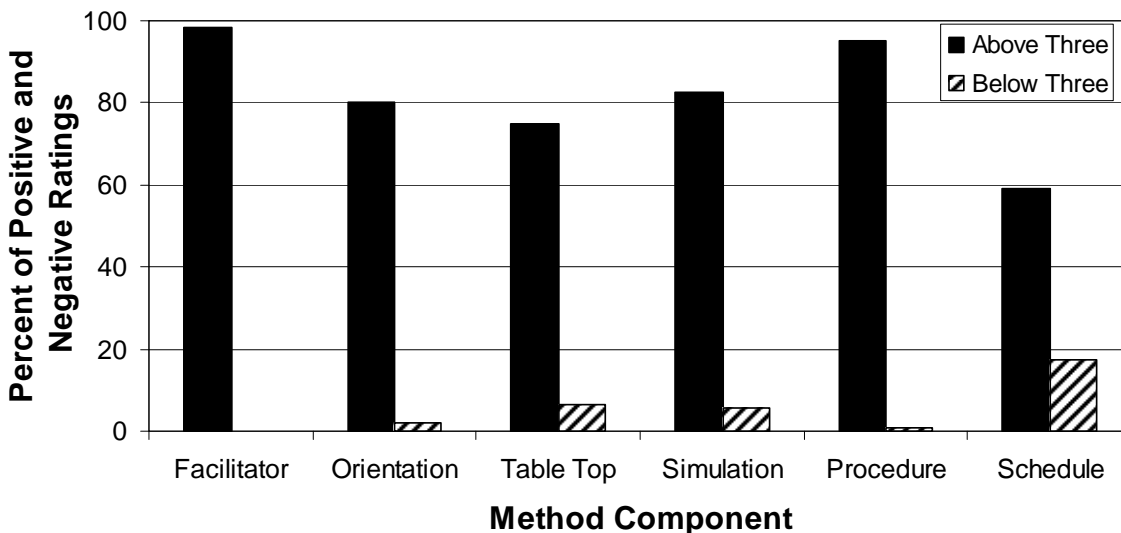


Figure 6. Facilitators' and participants' effectiveness ratings of method components.

Session number. Based on participant feedback following each session, the research team made refinements to the DSP. As shown in Table 5, ratings increased across sessions for most of the components rated. The data imply that the modifications made to the DSP between sessions,

including the *Facilitator's Execution Plan* and the *TTP Development/Revision Worksheets*, improved the quality of the TTP development toolbox.

Table 5

Facilitators' and Participants' Average Ratings of Method Components, by Session

Component	Session Number			
	Session 1	Session 2	Session 3	Session 4
Facilitator	4.25	4.86	4.39	4.75
Materials	3.75	4.71	3.88	4.21
Orientation	3.75	3.95	4.20	4.45
Table Top	3.84	4.36	4.76	4.57
Simulation	4.55	4.48	4.55	4.41
Procedure	3.95	4.20	4.48	4.45
Schedule	3.25	3.21	3.71	3.83
Mean	3.91	4.25	4.28	4.38

Methodology Improvements

The major methodological improvements that followed each test session fell into two areas-substantive DSP refinements and procedural refinements.

Substantive DSP refinements. The high ratings and positive feedback from facilitators regarding the DSP indicated that few significant changes were warranted. The major changes to the DSP included formatting information in BLUF and bullet forms where appropriate. Also, a master flowchart (Figure 7) was added as a visual aid to guide each stage of TTP development. As mentioned earlier, the Leader's and Facilitator's Guides were modified to expand the explanation of TTP and to specify best practices for brainstorming and group facilitation. All other changes to the DSP involved modifications to the TTP Development/ Revision Worksheets. Some of the procedural details contained in the Facilitator's Guide, the Leader's Guide, and the Facilitator's Execution Plan were adjusted to be consistent with the TTP Development/Revision Worksheets.

Procedural refinements. In a major procedural refinement, additional flexibility was incorporated into the schedule to fit the needs of a particular unit. For example, simulation training, TLP and practice sessions were labeled "if necessary." Simulation training could be limited to those tasks required of the participants during the exercises. For example, if no exercise required mounted maneuver, then that aspect of the training could be omitted.

Comparative Considerations

The current materials and procedures were created by transforming the FLEX-TTP method (Topolski et al., 2009) to a format that could be employed by a novice facilitator. The transformation included streamlining the DSP and creating new job aids for facilitators and participants. The comparative implications of these modifications will be considered in terms of disadvantages and benefits of the ST-TTP method.

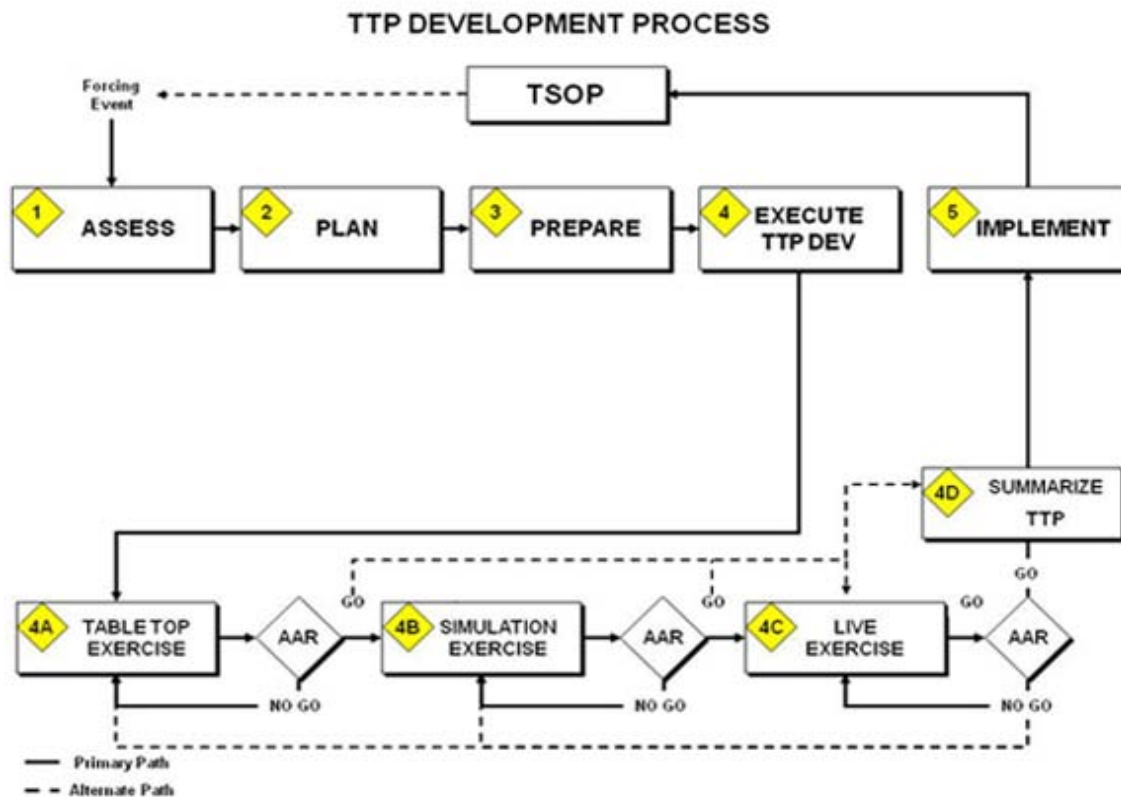


Figure 7. Process flowchart added as a DSP refinement.

Disadvantages. Facilitator ratings indicated the materials in the Soldier toolbox were adequate to enable facilitators to effectively perform their role. However, there are several aspects of being a good facilitator that likely don't apply to novice facilitators when compared with experienced facilitators. For example, unit facilitators would have less time available to prepare and would almost surely be less familiar with combat development processes, including TTP development. During ST-TTP sessions, TTP are vetted internally. That is, the same individuals who created the TTP rate and test them. The FLEX-TTP method allows for external TTP vetting, which leads to significant refinement (Topolski et al., 2009). In addition, during the FLEX-TTP method, there is power in comparing TTP from multiple sources. In the ST-TTP method, there is only a single source from which the TTP are generated.

Benefits. The ST-TTP method provides a functional procedure and set of materials for unit personnel, who increasingly must generate TTP using local assets. The time, resources, and personnel required to complete the ST-TTP method are substantially less compared with the FLEX-TTP method. While the ST-TTP DSP provides instructions for generating TTP in both written and graphic formats, the FLEX-TTP method leaves graphic techniques to developers.

In comparing the two methods, one should consider the ST-TTP method as a step-one, single source adaptation of the FLEX-TTP development method. The ST-TTP suite represents a method by which a tactical unit can generate and revise TTP for internal use. However, those

TTP could be fed to the Army’s institutional community. Eventually TTP from multiple sources could be compared for further vetting and refinement and modeled in the FLEX-TTP method.

Lessons Learned

The research in this project led to numerous lessons regarding various aspects of the ST-TTP method. These lessons were derived from written and oral comments contributed by facilitators and participants as well as from input provided by researchers. The lessons are summarized by category in Table 6.

Table 6

Summary of Lessons Learned, by Category

Category	Lesson Learned
DSP	<ul style="list-style-type: none"> • Materials should provide sufficient content and instructions to serve as stand-alone documents. • A balance must be struck between the quantity of materials and the time the end users (Soldiers) will have to read the materials. • The primary job aid (development worksheets) should provide for multiple forms of expression. • Participants should be adequately trained so they feel comfortable executing their role in the simulation.
Simulation	<ul style="list-style-type: none"> • The simulation should realistically represent the features/functions of the new warfighting capability. • Realistic stimulations greatly enhance the ability of participants to generate ideas and insights. • Simulations enable exposure to variables not easy to consider during table top exercises. • All modes of TTP development (table top, simulation, etc.) have limitations. • Sufficient time should be allotted for simulation training, perhaps as much as a full day. • Sufficient time (at least one week) should be programmed between facilitator tasking and initiation of TTP development to allow adequate preparation.
Timing	<ul style="list-style-type: none"> • Exercises should include sufficient time for executing troop leading procedures prior to mission execution. • A half hour is sufficient for executing simple company-platoon missions. • The daily schedule should be sufficiently flexible to accommodate delays and over-runs. • A daily session should not exceed 7-8 hr to avoid cognitive fatigue and blurring. • The amount of time needed to conduct a post-simulation TTP-focused AAR decreases across exercises.
Participants	<ul style="list-style-type: none"> • There is substantial variability between Soldiers in terms of facilitation style. • A facilitator should be at the same rank or higher than the leader/participant. • Participants tend to overestimate the effectiveness of their initial TTP. • Simulation capabilities may lure participants into game-playing digressions during exercises. • The ST-TTP method offers sufficient flexibility to accommodate the skill sets and needs of individual units.
Procedures	<ul style="list-style-type: none"> • Developing METT-TC-specific TTP across several modes is both feasible and necessary. • The ST-TTP method is suitable for developing TTP for new warfighting concepts and capabilities that extend beyond materiel.

DSP. Performance at all levels (facilitator, leader, and participant) is strongly influenced by the information available. The DSP must contain adequate information to enable role-players to perform their required tasks. While a certain level of detail is necessary, bulky instructions

result in negative perceptions by Soldiers and degrade “buy-in” to the process. The worksheets used to record ideas should support multiple forms of representation to enhance the quality of the TTP produced.

Simulation. Simulation training prior to the TTP development session should be adequate to allow the participants to operate fluidly in the environment. Training aids such as cardboard or plastic keyboard overlays or a “cheat sheet” guide could be used to accelerate training. High quality simulations play an essential role in constructively engaging participants. Stable, environmentally rich, realistic simulations on a par with or superior to home video games are needed to effectively immerse the participants in the exercises. This immersion encourages the Soldiers to consider temporal and spatial variables often overlooked during MAPEX/table top exercises. For instance, a 3-dimensional (3-D) environment allows Soldiers to explore how to best move on various types of terrain. The simulation can provide a virtual test of the TTP’s effectiveness, fostering refinement across multiple exercises. Every mode of TTP development is limited. One can expect a dip in performance when progressing from one mode to the next (MAPEX/table top to simulation, simulation to live).

Timing. While the proposed schedule contained sufficient time to complete the TTP development, performance shortcomings were evident. Participants frequently asked the operators for guidance during simulation exercises. Facilitators and leaders used exercise time to become comfortable in their roles. The current method would benefit from incorporating a separate training day in advance of the TTP development sessions. The daily schedule provided enough time to complete the goals without overtaxing the participants, facilitators, leaders or operators. Notably, exercises that occurred later in a session required less time than earlier exercises. The time savings likely reflected (a) Soldiers’ practice on the simulation and (b) particularly, cumulative refinements to the TTP by participants. In developing the schedule, the facilitator and leader should gauge the unit’s previous simulation training and TTP development experience and modify the schedule accordingly.

Soldiers. Facilitators naturally bring their own personalities and experiences into the process. Individual differences will introduce some variability to the information provided, the manner in which it is provided; time to conduct a session, and quality of facilitation. To ensure participants are exposed to all the information they need to perform their role, the information needs to be included in their handout materials. To help the facilitator maintain control over the session, he needs to hold the same rank or higher as the leader. A facilitator of equal or higher rank will be able to hold a leader in check, provide perspective, promote objectivity, and foster critical evaluation. In generating TTP, participants often overestimate the effectiveness of their TTP. This finding illustrates the importance of using an iterative vetting procedure and giving adequate simulation training. During simulation exercises, participants may engage in gaming behaviors not normally seen in real life. These digressive behaviors limit the effectiveness of the simulation as a means to test the TTP unless curtailed by leaders and facilitators as stressed in the DSP guides.

Procedures. The FLEX-TTP method has been shown to be effective for generating TTP when experienced facilitators/knowledge elicitation professional are used. The ST-TTP method is a modification of the FLEX-TTP method that can be used at the unit level as a single-source

TTP development process. The results indicate that the toolbox can be used effectively in multiple modes of development (MAPEX/table top, simulation), across diverse METT-TC conditions, and during various vignettes. While initially designed to integrate and employ new technologies, the method is flexible enough to be used for generating TTP for nearly any purpose.

Conclusions and Recommendations

As was the case with the FLEX-TTP method (Topolski et al., 2009), the ST-TTP method is an effective and efficient technique for generating and refining TTP. Soldiers gave favorable reviews of the method. They rated the method useful and necessary. Too much “local” knowledge is currently being lost across units, missions, and particularly across deployments. When a tour of duty ends, most of the lessons learned, TSOP, and TTP leave with the troops. Incoming troops either start from scratch, or rely on what worked during their previous tour of duty, even though some of the METT-TC may have changed. The introduction of new systems during deployment adds additional strain on Soldiers by having to develop additional TTP which effectively incorporate the systems. Having a method to document and hand off “what works here and why” was an aspect of the current method that the participants particularly favored and stated would be beneficial to the Army.

Future research might focus on the efficiency and effectiveness of the ST-TTP method compared to traditional methods of developing TTPs. Research on efficiency should also examine the potential “savings” anticipated in TTP development and refinement as a function of unit experience and practice effects. Research on effectiveness should address both near- and far-term transfer effects. Ongoing research by ARI is identifying more effective methods for communicating and assessing Soldiers’ understanding of TTP. Results of that research should provide TTP presentation methods and measures to support investigations of near- and far-term transfer effects.

The ST-TTP method is best viewed as a way to conduct the initial stage of the FLEX-TTP development process. The initial stage involves single source, small group generated TTP that are vetted internally. The ST-TTP method provides a Soldier-friendly means to achieve this goal. Once approved by higher authority, the TTP could be implemented by the group that developed them. The TTP could also be passed along to more experienced SMEs and facilitators for further refinement. This process would include comparing TTP from multiple units and across several METT-TC conditions, in accordance with the FLEX-TTP model. Experienced SMEs and facilitators should be able to draw out the general principles guiding the “whys” behind the TTP. Capturing and documenting this information lies at the heart of cognitive task analysis (Klein, 1996).

The results of these efforts could be used to train the cognitive decision making of future Soldiers. Once a sufficient number of TTP are developed, a library of simulation-based vignettes can be created as training tools. Research can be conducted to determine the best method for employing such a library. Suggested uses include:

- Posting the vignettes on a military website such as Army Knowledge Online to build an internet-based virtual learning environment.
- Using the vignettes in leaders' courses as a teaching aid. The vignettes could serve as study forums and test challenges to determine if they enhance the recognition and development of TTP.
- Determining the ideal ratios for presenting material in written, graphic, and simulation formats to optimize learning.

The findings and products of this research support the establishment of a structured, group-focused, and simulation-driven approach that unit Soldiers can implement using local resources. Warfighters can utilize the flexible methodology to organize and document their efforts to develop and revise focused TTP. The toolbox can help unit leaders keep their TTP and TSOP abreast of the latest equipment, organization, and doctrine. The resulting improvement in the quality and currency of TTP and TSOP can enhance combat effectiveness, especially at echelons below division.

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Appendix A

Acronyms

1LT	First Lieutenant
AAR	After Action Review
ADA	Air Defense Artillery
ANCOC	Advanced Non-Commissioned Officer Course
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
BLUF	Bottom Line Up Front
BN	Battalion
BNCOC	Basic Non-Commissioned Officer Course
BOLC	Basic Officer Leader Course
CAS3	Combined Arms and Services Staff School
Cdr	Commander
Co/CO	Company Commander
COE	Contemporary Operational Environment
CPT	Captain
CTA	Cognitive Task Analysis
DSP	Development Support Package
FAC	Facilitator
FCS	Future Combat Systems
FLEX	Flexible Method of Cognitive Task Analysis
FLEX-TTP	Flexible Method for Developing TTP
KE	Knowledge Elicitation
MAJ	Major
MAPEX	Map Exercise
METT-TC	Mission, Enemy, Terrain and Weather, Troops and Support, Time Available, and Civilian Considerations
MOS	Military Occupational Specialty
OAC	Officer Advanced Course
OBC	Officer Basic Course
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
P2P	Peer-to-Peer
PL	Platoon Leader

PSG	Platoon Sergeant
S3	Operations and Plans Officer
SFC	Sergeant First Class
SGT	Sergeant
SME	Subject Matter Expert
SSG	Staff Sergeant
ST-TTP	Soldier Tools for Developing TTP
SUGV	Small Unmanned Ground Vehicle
TLP	Troop Leading Procedures
TRP	Troop
TSOP	Tactical Standing Operating Procedures
TTP	Tactics, Techniques, and Procedures
UAV	Unmanned Aerial Vehicle
VBS2	Virtual Battlespace 2
XO	Executive Officer

APPENDIX B

TTP DEVELOPMENT SUPPORT PACKAGE (DSP)

<< *A Transformation Tool for Soldiers* >>

Developed By:

**U.S. Army Research Institute for
the Behavioral and Social Sciences**

March 2009

Approved for public release; distribution is unlimited.

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EXECUTIVE SUMMARY

About the Development Support Package (DSP)

The DSP gives units new tools for creating or revising tactics, techniques, and procedures (TTP).

Purpose of DSP

The purpose of this DSP is to assist units and Soldiers in generating or revising TTP. The DSP provides a methodical, proven approach to TTP development or revision based upon an existing method that has been further tested and refined during subsequent research. The method outlined in the DSP is suitable for use by multiple unit types and echelons using various modes of development/revision. The three modes described in the DSP are MAPEX/table top, simulation exercises, and live exercises.

Who Needs to Read the DSP?

Leaders responsible for developing or revising TTP should read *Chapter 1 – Leaders Guide*, and facilitators who help the leader develop the TTP should read *Chapter 2 – Facilitators Guide*.

What's in the DSP?

Introduction: explains the purpose and background on the method and gives an overview of the processes and procedures.

Chapter 1: Leader's Guide provides specific instructions to the leader of the unit conducting the TTP development/revision process.

Chapter 2: Facilitator's Guide provides specific instructions to the individual who will facilitate and guide the TTP development/revision process in collaboration with the unit leader.

Appendices: includes procedural tools, tactical materials, checklists and other items needed to support execution of the vignette-based exercises that provide the environment in which TTP will be developed and tested. The appendices also include orientation materials to bring Soldiers up to speed.

Method Overview

The TTP development/revision process involves the use of tactical vignettes in various development/revision modes (i.e., environments) to drive discussion sessions from which data relevant to TTPs will be captured and organized. Ideally, units should progress through three modes (MAPEX/table top, simulation and live exercise) to increase realism and thereby improve accuracy, add detail, and boost confidence in the session outcomes. Units should conduct these sessions iteratively, developing and refining TTPs until leaders are satisfied with the results achieved within the limitations of the mode employed. A facilitator guides the process and assists the unit in achieving its objectives.

The doctrinal definitions of tactics, techniques, and procedures follow:

Tactics - *The ordered arrangement and maneuver of units in relation to each other and/or to the enemy in order to use their full potentialities (FM 3-0).*

Techniques - *The general and detailed methods used by troops and/or commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel (FM 3-90).*

Procedures - *The standard and detailed courses of action that describe how to perform a task (FM 3-90).*

Figure 1: TTP Definitions

The process uses METT-TC (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations) as a “checklist” of conditions under which a TTP may be executed. A change in a METT-TC variable (see the *Introduction* of the DSP for a list of variables) could invalidate a TTP.

What Personnel/Facilities and Equipment Are Needed?

TTP development requires the involvement of the unit leader, the facilitator and the participants. Other personnel may be required depending on the training mode selected (MAPEX/table top, simulation, and live). The unit may use a variety of facilities to conduct a MAPEX/table top exercise or a simulation exercise, and both are dependent on locations. For live exercises, which may be resource intensive, long-term planning will be required. The unit should have on hand all their MTOE equipment and understand its use and capabilities.

How to Use the DSP

Leaders should read and become familiar with the *Introduction* and then use *Chapter 1 - Leaders Guide* as a stand-alone reference and guide for development and/or revision of TTP. The leader makes an assessment, decides to start the process and asks his higher headquarters for a facilitator to assist with the development.

Once assigned the task, facilitators should become familiar with the *Introduction* and *Chapter 1* and then use *Chapter 2 - Facilitators Guide* as a stand-alone reference and guide for developing and/or revising TTP. The facilitator uses the guide to develop TTP in collaboration with the leader.

INTRODUCTION

The purpose of this Development Support Package (DSP) is to assist units and Soldiers in generating or revising tactics, techniques and procedures (TTP). The DSP provides a methodical, proven approach to TTP development or revision based upon an existing Flexible Method of Cognitive Task Analysis (FLEX) (Shadrick, Lussier, & Hinkle, 2005) further tested and refined during subsequent research (Topolski, Leibrecht, Kiser, Kirkley, & Crabb, 2009). The method outlined in the DSP is suitable for use by multiple unit types and echelons using various modes of development/revision.

The FLEX method is an iterative, interview-based, and vignette-driven approach that provides a structured process for developing or revising TTP. The design of the FLEX method provides a framework for examining variables (METT-TC) that impact Soldiers' employment and integration of new technologies. While originally intended to support concept and TTP development for future systems, the FLEX method applies equally to current force TTP development/revision requirements. This DSP refines the FLEX-TTP method to make it more suitable for unit use by providing Soldier-friendly tools, procedures and instructions tailored to that end.

Chapter 1: Leaders Guide is a stand-alone document that provides specific instructions to the unit leader responsible for the TTP development/revision process. **Chapter 2: Facilitators Guide** is a stand-alone document that provides specific instructions to the individual nominated by the unit leader to facilitate and guide the TTP development/revision process.

Background

This process was initially conceived to maximize the effectiveness of planned Future Combat Systems (FCS) capabilities as new approaches are required to develop guidance for integrating and employing the new technologies. FCS components are fielded with many untested capabilities and probably some unforeseen weaknesses. Soldiers will determine how best to integrate these systems through "field testing." By developing a "baseline" of possible TTP before equipment capabilities are actually produced, information on changes to or development of new TTP can be developed and tested. This process can also be used to develop TTP anytime a unit determines the need, or when a current TTP needs revision.

This DSP is your "go to" package to assist you through the process of TTP development or revision. The methodology in the DSP enables unit leaders to follow a simple set of instructions which allow them to use experience and knowledge to create or revise TTP.

Overview

The TTP development/revision process (see Figure 2) begins when the unit leader determines that he is missing a TTP or that a TTP needs revision. The next stage is to plan the exercises needed to develop new TTP and to coordinate the resources needed for the exercises. He also nominates or asks for a facilitator from his higher headquarters. He executes the MAPEX/table top, simulation, and live exercises according to local policies

and procedures for those activities. At the end of the execution stage he should possess TTP that he is comfortable with and prepare them for approval by his commander. This approval allows the TTP to be used by the entire unit. This is a never ending cycle. He may choose to begin again with an assessment of other TTP or a revision of the ones he created previously.

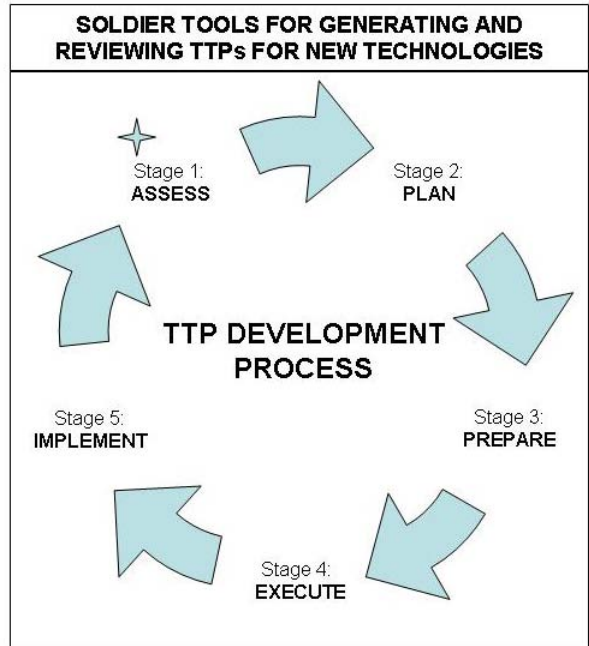


Figure 2: The TTP Development/Revision Process

The TTP development/revision process involves the use of tactical vignettes in various development/revision modes (i.e., environments) to drive the exercises from which data relevant to TTP will be captured and organized. Ideally, units should progress through three modes (MAPEX/table top, simulation and live exercises) to increase realism and thereby improve accuracy, add detail, and enhance confidence in the session outputs. Units conduct these sessions iteratively, developing and refining TTP until leaders are satisfied with the results achieved within the limitations of the mode employed. A facilitator guides the process and assists the unit in achieving its objectives.

The Army definitions of TTP:

Tactics - The ordered arrangement and maneuver of units in relation to each other and/or to the enemy in order to use their full potentialities (FM 3-0).

Techniques - The general and detailed methods used by troops and/or commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel (FM 3-90).

Procedures - The standard and detailed courses of action that describe how to perform a task (FM 3-90).

Figure 3: Army TTP Definitions

METT-TC in the Process

The TTP development/refinement process uses METT-TC variables as a “checklist” of conditions under which a TTP may be executed. A change in a METT-TC variable could invalidate a TTP, and could also be the forcing event that causes the leader to decide that TTP development/revision is required. Below is a sample list of those METT-TC variables from FM 3-0.

Sample METT-TC Descriptions from FM 3-0

MISSION

OFFENSIVE OPERATIONS

- Movement to contact
- Attack
- Exploitation
- Pursuit

DEFENSIVE OPERATIONS

- Mobile defense
- Area defense
- Retrograde

STABILITY OPERATIONS

- Civil security
- Civil control
- Restore essential services
- Support to governance
- Support to economic and infrastructure development

CIVIL SUPPORT OPERATIONS

- Provide support in response to disaster or terrorist attack
- Support civil law enforcement
- Provide other support as required

ENEMY

ENEMY

- Enemy
- Adversary
- Supporter
- Neutral

TERRAIN AND WEATHER

MILITARY ASPECTS OF TERRAIN – OAKOC

- Observation and fields of fire
- Avenues of approach
- Key and decisive terrain
- Obstacles
- Cover and concealment

MILITARY ASPECTS OF WEATHER

- Visibility
- Wind
- Precipitation
- Cloud cover
- Temperature
- Humidity

CLIMATE AND WEATHER

- Pattern of temperature, wind velocity, and precipitation

TROOPS AND SUPPORT AVAILABLE

FRIENDLY TROOPS

- Number
- Type
- Capabilities
- Condition

TIME AVAILABLE

Time Available - is the time available to friendly forces to accomplish the mission relative to enemy efforts to defeat them. It can also be the time needed to accomplish their objectives or to change current conditions into those of the desired end state. This relates to the 1/3-2/3 rule, in which commanders use 1/3 of the time to plan and allow subordinates 2/3 of the time available to execute.

CIVIL CONSIDERATIONS

AREAS/STRUCTURES

- Buildings
- Blue Prints
- Street Patterns
- Urban Patterns
- Criminal Enclaves

- Underlying terrain
- Construction materials
- Key commercial zones
- Subterranean passages
- Political precincts/districts

CAPABILITIES

- Fuel
- Fire/Rescue
- Electrical power
- Water supply
- Transportation
- Communications
- Health services

ORGANIZATIONS/PEOPLE/EVENTS

- NGOs
- Media
- Culture
- Loyalties
- Authorities
- Perceptions
- Relationships
- Labor unions
- Demographics
- Groups & sub-groups
- Religious holidays

Roles and Responsibilities

TTP development requires the involvement of the unit leader, the facilitator, and participants. As the process becomes increasingly complex with each mode, the requirements for the unit leader, facilitator, and participants also become more complex. The use of a note taker during the MAPEX/table top and simulation modes is highly recommended.

Unit Leader

The unit leader (Primary Trainer) makes the decision that TTP development/revision is necessary and directs his unit to conduct the training. He is responsible for issuing the WARNO to unit personnel to start the planning.

Facilitator

The facilitator is a peer of the unit leader, and he is responsible for leading the exercises. He focuses on the overall method and decision-making process during the exercises. He drives the wargaming/simulation/live training, and should be familiar with the procedures to execute them. The facilitator may be another unit leader or a senior staff officer. The facilitator makes decisions in cooperation with the unit leader.

Participants (Members of the Unit)

Personnel should be assigned roles according to his grade and position, and should execute their doctrinal functions during training. Each participant should fully understand the unit's mission and their specific role or roles in that mission.

Note Taker

The note taker's sole job is to record the key discussions, conversations and processes as they happen. His notes may be the basis for the TTP-focused AAR, so accuracy and completeness are essential. Video/voice recording is "a way" to ensure data is captured and can be replayed for accuracy.

Support Personnel

A variety of other personnel are needed to support an exercise regardless of the mode selected. Examples include: additional note takers, computer data input personnel, simulation support staff for the simulation center, white cell/red cell personnel, and other units and staff (for live exercises).

Application Scenario

CPT Brown's Nightmare: Cross-Leveled Equipment

1900 hours, Friday: *CPT Brown, Commander of Charlie Company, 2-41 Infantry, was about to go home for the weekend when he learned that he was receiving an attachment for his upcoming deployment that consisted of a UAS section with equipment. He also learned that there were no UAS to train with prior to deployment. As he drove out of the parking lot for the weekend he considered what he was going to do when he returned on Monday.*

0800 hours Monday: *CPT Brown meets the section leader of the UAS section and discusses their capabilities. The meeting turns into a MAPEX/Table Top exercise during which he asks the section leader, "How do you normally deploy the UAS in support of company operations?" The section leader, who was new to his position, was unsure of the doctrinal employment of the UAS. CPT Brown set out to learn more about the system and its capabilities. He asks his peers if they have any experience with UA systems, but none had experience employing a UAS.*

1000 hours Tuesday: *CPT Brown seeks out the S3 and asks "Sir, can you provide my company training on the UAS." The S3 explains that this UAS is different than any other he had worked with but suggests he go over to the simulation center to see if they have a trainer available.*



Figure 4: UAS Fielding

1200 hours Tuesday: *CPT Brown arrives at the simulation center and finds that they have recently received software that allows units to practice with new equipment prior to actual fielding. The software is simple and easy to use. The simulation operators prepare for a session on Wednesday morning.*

0900 hours Wednesday: *CPT Brown assembles his entire unit in the simulation facility and gets briefed on the software. He will use a scenario from a recent STX lane. But he has never developed a TTP and soon learns that he has wasted hours of work with the simulation. He didn't have a proper set of guidelines to help him write a solid TTP.*

1000 hours Wednesday: *The simulation facility manager gives CPT Brown a copy of a development support package. The package provides the basis for conducting a series of MAPEX/table top exercises and simulation exercises to generate TTPs.*

CHAPTER 1 – LEADERS GUIDE

This *Leader's Guide* focuses on the role of the unit leader in the tactics, techniques and procedures (TTP) development process. It provides specific guidance to assist the leader in planning and preparing for his crucial role in the TTP development process and provides a framework for steering the development team toward developing or revising effective TTP. The chart in Figure 1-1 details how the process flows, starting with the leader making an assessment that there is a need for either TTP development or TTP revision.

Purpose

The purpose of the Leader's Guide is to set forth guidelines for the expectations, roles and responsibilities of the leader as he guides the TTP development team through the structured, systematic process.

What Is a TTP?

Tactics: The ordered arrangement and maneuver of units in relation to each other and/or to the enemy in order to use their full potentialities. (FM 3-0)

Techniques: The general and detailed methods used by troops and/or commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel. (FM 3-90)

Procedures: Standard and detailed courses of action that describe how to perform a task. (FM 3-90)

(Composite Definition: "Tactics, techniques, and procedures refer to general and detailed methods for using equipment and personnel to accomplish a specific mission under a particular set of METT-TC conditions." (Non-doctrinal)

Limitations

Specific TTP have limitations because they are tied to specific missions and METT-TC conditions. However, some general goals guide the development and implementation of TTP. For example, minimize harm to Soldiers and non-combatants, maximize the usefulness of your equipment to accomplish the mission, and minimize damage to infrastructure. When developing TTP, construct statements that go beyond the "here and now."

Responsibilities

The unit leader is responsible for leading the TTP development process. The leader focuses on developing TTP during the exercise using the METT-TC variables, and makes decisions by coordinating with the facilitator to ensure the unit stays focused on the process. If a potential conflict with an established TTP arises, he ensures that coordination with the chain of command on "emerging TTP" is accomplished prior to implementation. The leader must ensure that the unit uses METT-TC as the variables/conditions under which an "emerging TTP" is executed and evaluated.

NOTE: In this document the pronoun "he" refers to both males and females.

FIVE STAGE TTP DEVELOPMENT PROCESS

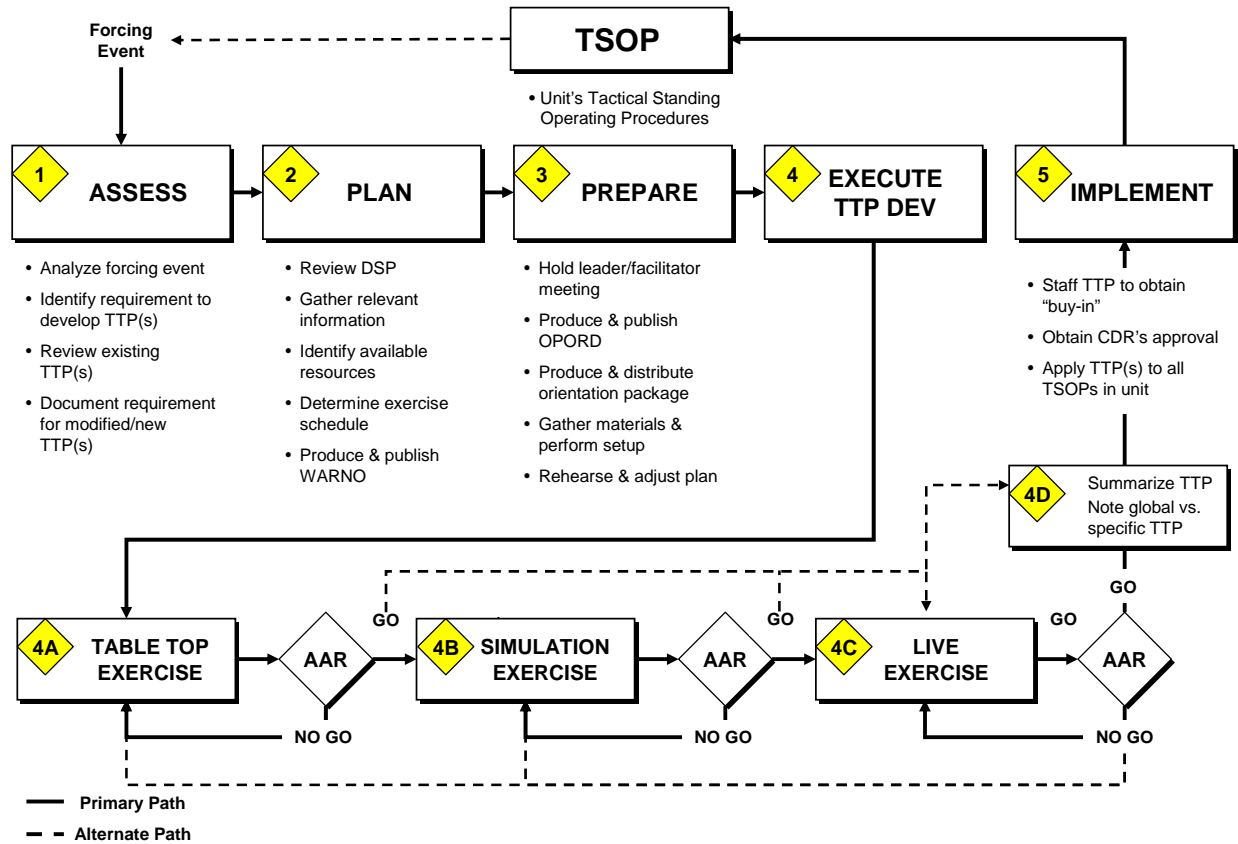


Figure 1-1: TTP Development/Revision Flowchart

Stages of the Development Process

STAGE 1 – ASSESS: The leader determines that his/her unit requires a new set of TTPs, or that the current set of TTPs is not adequate or current.

STAGE 2 – PLAN: The leader has most of the responsibility to plan for the development/revision of TTP. He asks for or nominates a facilitator from his higher headquarters. The facilitator collaborates with and assists the leader.

STAGE 3 – PREPARE: The leader develops an OPORD for the exercise. The OPORD must contain all the information participants will need to accomplish the MAPEX/table top, simulation, and live exercises of the development/revision process.

STAGE 4 – EXECUTE: The leader provides the personnel and applies his guidance and tactical expertise, but the facilitator has most of the responsibility for the exercises during this stage of the process. He runs the exercises, serves as time keeper, and modifies the schedule depending on the outcomes of the MAPEX/table top, simulation, and live exercises.

Stage 4A – Table top Exercise: Participants wargame the proposed TTP. At the conclusion of the exercise, the participants conduct an AAR to determine if the TTP execution was a Go/No Go. If the outcome of the AAR is a Go, the leader may choose to bypass the simulation and/or live exercises and proceed to stage 4D; however, completion of all execution stages is recommended.

Stage 4B - Simulation Exercise: Participants complete a simulation exercise to further evaluate the TTP. The leader may choose to bypass the live exercise and proceed to stage 4D; however, completion of all execution stages is recommended.

Stage 4C - Live Exercise: Participants conduct a live training exercise to validate the results of the prior exercises in a realistic environment using the equipment and personnel required for the TTP.

Stage 4D - Summarize TTP: The leader summarizes the results of stages 4A-4C and sends the completed TTP summaries to the next higher level of command for approval/staffing. If a company conducts TTP development, then the battalion commander and his staff verify and approve final TTP for incorporation in the unit's TSOP.

STAGE 5 – IMPLEMENT: The leader captures the set of TTPs that were developed or revised and applies them to unit SOPs, etc. The facilitator maintains all development/revision documentation in support of the leader.

The process is now complete, but may start again with the assessment stage if the leader feels a forcing event has occurred.

STAGE 1: ASSESS THE NEED FOR TTP DEVELOPMENT/REVISION

The process starts with the unit leader determining that there is a need to either develop new TTPs or revise old ones. This assessment is driven by a forcing event described later in this chapter. Once the requirement to develop TTP is established, Stage 1 is over and Stage 2 (Planning) begins.



- Analyze forcing event
- Identify requirement to develop TTP(s)
- Review existing TTP(s)
- Document requirement for modified/new TTP(s)

Figure 1-2: Assessment

One of the following “forcing events” may drive the development of new TTP or modification of existing TTP.

- Lack of existing TTP, or outdated TTP.

- New item of equipment or new type of personnel (Soldiers may receive new equipment that has never been widely used, or Soldiers with a new MOS may arrive).
- Change in the Mission Essential Task List (METL).
- Task organization change. Units often receive an attachment that may alter the way they “normally” execute a specific mission. An example would be the attachment of an engineer detachment to a tank company. This attachment gives the tank company commander added capabilities to detect and breach obstacles and/or minefields. This will drive the leader to reorganize his unit to leverage the expanded capabilities.
- Mission change. Prior to deployment a unit may receive a new mission or change in mission, typically due to enemy action.
- Updating of tasks. A task is a clearly defined and measurable activity accomplished by organizations and individuals. Task steps require updating on a regular basis. Updates may come from proponent schools who maintain the task databases.

STAGE 2: PLAN FOR TTP DEVELOPMENT/REVISION



- Review DSP
- Gather relevant information
- Identify available resources
- Determine exercise schedule
- Produce & publish WARNO

Figure 1-3: Plan for TTP Development

The leader reviews the DSP:

- Review the orientation materials (Appendix A)
- Review how to conduct a MAPEX/table top exercise. (Ref: TC 25-20, A Leaders Guide to AARs)
- Review how to conduct a simulation vignette
- Review how to conduct live exercises (Ref: TC 25-10, A Leaders Guide to Lane Training)

- Review how to conduct TTP development/revision (Figure 1-1, Appendix B-1)
- Understand the TTP summary documentation (Appendix B-3)
- Understand how to conduct a TTP-focused AAR (Ref: TC 25-20, A Leaders Guide to AARs)
- TTP-focused AAR key points
 - Remain focused on why the unit is conducting the AAR, do not discuss the wins or losses. Discuss the TTP.
 - This is not an evaluation of the unit.
- TTP-focused AAR format
 - State the mission
 - Discuss the who, what, when, where, how, and why of the operation pertaining to the new item of equipment, new personnel, etc.
 - Summarize the TTP into concise statements that answer the who, what, when, where, how, and why.
- Review Center for Army Lessoned Learned (CALL) related documents, at <http://call.army.mil/>
- Review TTP examples from local sources, other units

Gather relevant information:

- Technical data and specifications related to the equipment or system to be exercised
- Technical Manuals applicable to the equipment or system to be exercised
- Rapid Fielding Initiative (RFI) documentation
- Existing related TTP and doctrine (four most commonly used sources are below).
 - Center for Army Lessoned Learned (CALL)
 - Battle Command Knowledge System (BCKS)
 - Participating unit's TSOP, or an approved TSOP for a similar unit
 - Reimer Digital Library (online)

Identify all available resources required to run a MAPEX/table top exercise:

- Facilitator. The facilitator must be able to interact with the chain of command and have similar experience levels of the unit leader. He also must not have an impact on the execution of any exercise due to his role as facilitator. Recommendation: Peer of the unit's leader but external to the unit. (Example: Alpha Company executes the training and Bravo Company commander is the facilitator.)
- Participants (leaders only, or up to the entire company)
- Facility (conference room-like facility)
- Data capture tools (white board, butcher paper, computer, etc)

- DSP, TTP examples, reference materials
- Review how to help the facilitator wargame possible TTP using FM 5-0, 3-149 as a guide. The eight steps of wargaming follow:
 - Gather the tools
 - List friendly forces
 - List assumptions
 - List known critical events and decision points
 - Determine evaluation criteria
 - Select the wargame method
 - Select a method to record and display results
 - Wargame the battle and assess the results.

Identify all available resources required to run a simulation exercise:

- Facilitator. The facilitator has major responsibilities both before and during the exercise. They include: assisting the unit leader in overseeing the coordination and planning of the exercise; controlling the flow and progress of the mission events during the exercise; and role-playing the ARFOR commander. A current or former commander or someone of comparable operational and training experience would be well suited to the role. Because of his critical role in exercise planning and preparation, it is imperative that the facilitator be appointed as early as possible in the planning process.
- Participants
 - Primary Training Audience. Example at the company level: company/team commander and platoon leaders.
 - Primary Participants. Example at the company level: the primary participants will be all members of the company/team.
 - Supporting Audience. Other participants include members of supporting units. These personnel role-play their organizations and operate from simulation workstations. In general, these supporting audience members will not be the focus of observations or feedback. However, they may participate in TTP-focused AARs, both to provide information and to learn from the AARs.
- Desktop simulation
 - Training Support Packages – TSPs containing simulation materials.
 - Commercial off the Shelf Games. The interactive digital medium of computer games holds promise for application in the realm of military simulation. The Army initiative to leverage commercial computer games for military applications is growing; several posts have adopted modified commercial games to enhance classroom instruction and are using them to supplement their robust simulation suites.
 - Unit-run computer lab stocked with simulation or gaming software.
- Battle Command Training Centers – BCTC. The current models in the Army Constructive Training Federation (ACTF) include: CBS, Tactical Simulation (TACSIM), Combat Service Support Training Simulation System (CSSTSS), Joint Conflict and Tactical Simulation (JCATS), Digital Battlestaff Sustainment Trainer (DBST), Warfighters

Simulation (WARSIM), WARSIM Intelligence Model (WIM) a TTP-focused AAR tool (currently Vision XXI), the Joint Deployment Logistics Model (JDLM) and One Semi-Automated Forces (OneSAF). Two other constructive simulations, BBS and Janus, can be used for collective training.

- Supporting personnel and equipment. Battle Command Training Analytics and Matrix provides the analytics for personnel and classroom requirements needed for digital training. Using the Fort Hood BSTF model, a support staff of 27 personnel is required at each installation to maintain and operate a standard battle staff training facility. Five individuals perform the Operations/Administrative functions such as a facility manager, operations officer, property/security, and administrative support. Twenty personnel provide instruction, technical support and simulation training support. A dedicated staff provides the capability for any unit to train with little or no impact on the unit. The expertise to interface simulations and provide continuous training support is currently not available in tactical units. The requirement for 27 personnel is based upon a capability to support two battalion-size units conducting training concurrently with no augmentation to the support staff.
- Facilitator/Exercise Director. This person has the most influence on the quality of the exercise. In addition to completing his numerous responsibilities described in the guide, the person selected for this position must be able to manage the unexpected situations that inevitably arise during the course of planning, preparing, and executing the exercise. The facilitator/exercise director must attend to the problems that arise to keep the exercise on track, supporting the objectives. During the exercise he has training options, key advisor inputs to consider, and the use of tools and techniques at his disposal to implement decisions that have a direct effect on the training. The exercise director runs the exercise so the commander can focus his attention on training the unit. These are among the reasons the exercise director should possess the experience and insight of a senior officer, such as, an incumbent or former commander.
- Leader. It is not recommended that the leader serve as the exercise director. If he chooses to do so, he should appoint an assistant to serve as the controller during the conduct of the exercise itself. There are two reasons for this guidance:
 - The leader is considered a key participant and member of the target training audience during the exercise and should be completely immersed in his role as commander.
 - The individual who controls the flow and progress of the exercise may find it difficult to transition to a functioning member of the training audience.
- Observers. The observers provide feedback to the higher headquarters and the unit leaders in the training audience. They will probably not be a permanent observation team and will likely have to be tasked from another unit. They should have battalion and/or company level experience depending on the observer position they are filling.
- Role-players. Role-players support the exercise from the simulation workstations by playing the roles of the unit's subordinate and supporting units (Blue Force [BLUFOR] role players), brigade staff (exercise control [EXCON]), threat and civilians. Significant resources and coordination are required, depending on the exercise scenario, to script desired incidents and events during exercises. Role-play instruction development,

therefore, is a challenge for all exercise planners. Role-player instructions and recommended characteristics should include at a minimum:

- A description of the contemporary operational environment (COE) to include demographics.
 - A discussion of the scenario, a scenario timeline, areas to be occupied (who, what, where, when, and duration).
 - Personal profiles of each character used in the exercise.
 - Group profiles with attitudes toward BLUFOR and each other.
 - Guidelines for role-players to represent any/all external organizations required by the OE conditions and planning factors.
 - The BLUFOR role-player positions are best filled by the unit's subordinate personnel. While there is no planned observation and feedback system for role-players, the opportunity exists for role players to receive valuable training.
 - The EXCON positions representing the brigade staff are best filled by staff officers or assistants who perform those functions on the higher headquarters/installation staff.
 - The threat and civilian controller should be someone with experience representing a COE threat.
- Interactors. The simulation interactors serve as the role-players' agents in operating the workstations. There will be threat/civilian and BLUFOR interactors. They should receive simulation training.
 - Training Support. The installation's battle simulation facility manager is the key advisor on training support. He is responsible for assisting in exercise support planning, coordinating all training facility support, JCATS training and the control workstation (CWS). During the exercise, this person is the exercise director's assistant for control of the role played troop and platoon workstation teams.
 - Simulation center and staff. The exercise may require the support of an established simulation center that has run battalion-level exercises using JCATS. The staff of the simulation center should be familiar with the general capabilities and characteristics of this type of exercise.

Sample Exercise Schedule:

Table 1-1: Sample Exercise Schedule

<i>D - 15 through D -1</i>
Set up and input initial tactical situation
Set up communication and workstation maps
Conduct simulation train-up (role-players)
Conduct OC training (key events, exercise training objectives, and collection plan and TTP-focused AAR input)
<i>D through D + 7</i>
Conduct the simulation exercise
Conduct the final TTP-focused AAR
Publish the exercise report with developed TTP

Table 1-2: Sample Exercise Milestones

Announce exercise director and issue exercise directive
Conduct initial IPR and finalize training objectives
Finalize primary training tasks
Task controllers and player/controllers
Assign controller tasks
Identify contenders
Identify exercise location
Identify observer/evaluator requirements
Finalize task organization of friendly forces
Finalize task organization of contender forces
Finalize outside actors and role players
Complete initial draft of the exercise schedule
Finalize personnel requirements
Produce scenario maps
Begin OPORD and scenario development
Finalize OPORD and scenario
Finalize task organization
Approve exercise training program
Approve exercise control plan
Approve after action review (TTP-FOCUSED AAR) methodology
Train players and controllers on Spectrum
Issue OPORD
Review database
Preview communications plan
Review battle simulation center (BSC) setup plan
Conduct briefback on OPORD
Conduct Exercise and Develop TTPs
Conduct formal TTP-FOCUSED AAR

Produce and publish a warning order for all participants and support personnel.

STAGE 3: PREPARATION FOR TTP DEVELOPMENT OR REVISION



- Hold leader/facilitator meeting
- Produce & publish OPORD
- Produce & distribute orientation package
- Gather materials & perform setup
- Rehearse & adjust plan

Figure 1-4: Prepare for TTP Development

Hold leader meeting to:

- *Identify training objectives* Identify, publish, and disseminate specific training objectives to the facilitator and participants. The purpose of training objectives in a MAPEX/table top exercise is threefold. First, they establish the tasks to be trained. Second, they define the conditions under which the unit must be able to perform those tasks. Third, they define the standard by which performance will be measured. The performance objective should bridge the performance gap (in equipment use or personnel function) that results from the lack of TTP or from out-of-date TTP. Performance objectives allow the unit to operate or train at a higher level, and help the unit get the most from live training. Training staff techniques and procedures at home station is a good example of training in preparation for the field.
- *Select vignettes*
- Decide on a scenario. The unit deploys as part of Army Forces (ARFOR) in response to small/medium/large-scale contingency in a fictional country. Example scenarios include:
 - **Multi-Level Training Scenario.** Multi-Level Scenario 1.0 (MLS) is a defense planning scenario (DPS) / multi-Service force deployment (MSFD)-like major combat operation (MCO) scenario in a fictitious Geographic Combatant Command (GCC) area of responsibility. The U.S. land forces in the scenario include one Corps, three Divisions, three Heavy Brigade Combat Teams (HBCT), five Stryker Brigade Combat Teams (SBCT), five Infantry Brigade Combat Teams (IBCT), three Combat Support Brigades (CSB), four Combat Aviation Brigades (CAB), two Battlefield Surveillance Brigades (BFSB), and theater assets. U.S. air and sea assets include a carrier strike group, three air expeditionary forces, two marine expeditionary brigades, eighteen U.S. Air Force fighter squadrons, and six bomber elements. Coalition forces include a light infantry brigade. The U.S. led coalition's mission is to conduct offensive operations to

reestablish an ally's border following an incursion from the threat country. The coalition will defeat the threat country forces; enforce a UN resolution calling for CBRNE inspections and restore regional stability. MLS 1.0 is developed to support the Army's modular force, FCS and spin outs, EBCT testing, and other TRADOC combat development issues.

- Caspian Sea Scenario. The Caspian Sea scenario involves competing regional interests, and eventually war, over oil and natural gas. Forces seized territory near an important pipeline. After diplomatic efforts failed to resolve the situation, American troops were sent to the region. There had been 30 days of intensive combat, with the Army's Objective Force being the key maneuver element that's come against the Red force. The Red air force is unique in the Caspian scenario. It's comprised entirely of unmanned aerial vehicles, almost 1,000 of them. They used them as 'niche' technology against the Army's Objective Force, which is a very capable force. The Army's Objective Force in the Caspian Sea scenario is very rapidly deployable and gets to the battlefield with a lot of capabilities, especially in communications and intelligence-gathering.
- Local Scenario. Battle Command Training Centers (BCTC) may have scenarios linked to local training areas with fictitious enemy they might encounter in any theater. These will likely be easier to facilitate when combining simulated and live training.
- Decide on a tactical location. Most simulations use a fictitious country with a background conflict to set the timeline of the scenario. The simulation will more likely use actual terrain with fake names. Pick terrain/location that meets the needs of the TTP development. Vary the terrain type by desert, wooded, open, flat, hilly, etc.
- Decide on threat and civilian types. The scenario's threat and civilian personnel should include an array of indigenous personnel (at least two major ethnic groups and several minorities), factions (political parties, special interest groups, paramilitary, and organized crime), unconventional forces (special purpose forces) and conventional forces. The exercise should focus on the two major ethnic groups, factions, and unconventional forces. Optional fragmentary orders (FRAGO) introduce conventional threat forces initiating major theater war.
- Vignette tailoring. Leaders can adjust METT-TC factors to vary conditions in the vignettes. Additionally, each unit must adjust the vignettes to match their capabilities. Minimal adjustments will be required during the MAPEX/Table Top exercise. However, if the leader needs to adjust the simulation (new models, new terrain), the simulation center staff must assist him. During live exercises, the director or senior leader must decide if changes to the vignettes are possible if the unit developing TTPs is part of a larger exercise.
- *Select mode*
- MAPEX/Table Top. This is by far the easiest and least time consuming mode to use. Small Group Exercises (SGE), MAP Exercises, and Staff Exercises are available at most BCTCs. The MAPEX/Table Top exercise could follow wargaming outlines and could also be considered similar to a brainstorming session.
- Simulation. Simulation provides a more robust environment for exercises than other modes; however, simulations require additional personnel and equipment that are external

to the unit. Further, simulations take more time to complete than other modes. Commercial off the shelf (COTS) first person shooter games such as “Ambush” and “VBS2 ARMY” have been adapted for military training.

- Live. Live training is defined as “a representation of military operations, using military personnel and equipment that simulate experiences achieved during actual combat conditions” (Ref: AR 25-10, A Leaders Guide to Lane Training, page 99). For example, if the training audience is a staff, they are put in a staff setting and provided the cues for performance that they would normally get in any operational situation. Live training has long been thought of as “the way” to do training/exercises. But, it does come at a higher cost. Land has to be scheduled, fuel and ammunition costs are very expensive, and an OPFOR has to be trained. The observer/controllers may have to come from other units in the higher headquarters organization.
- *Select the simulation type*
- COTS Games/Simulations
- Maneuver Control System (MCS)/Blue Force Tracker (BFT)/Force XXI Battle Command, Brigade and Below (FBCB2).
- Close Combat Tactical Trainer (CCTT), Aviation Combined Arms Tactical Trainer (AVCATT), Fire Support Combined Arms Tactical Trainer (FSCATT), Air Defense Combined Arms Tactical Trainer (ADCATT), and the Engineer Combined Arms Tactical trainer (ENCATT).
- Joint Conflict and Tactical Simulation (JCATS)
- *Review the process*
- *Produce and publish the final plan*
- *Provide orientation information to the unit (facilitator)*
- *Gather materials and perform set-up*
 - Doctrinal materials. All applicable Army Field Manuals, Training Circulars, Pamphlets, and Guides
 - Unit TSOPs. All tactical SOPs from battalion to the lowest section in the unit
 - Recording equipment (audio, visual, written). It will be critical to record the data from the simulation to get a clear picture about what occurred and did not occur
 - Operations Plan (OPLAN)/Warning Order (WARNO)/Operations Order (OPORD)/Fragmentary Orders (FRAGOs)
 - Maps/Graphics/Overlays
 - ABCS Digital Systems (MCS, FBCB2, BFT)
- *Rehearse and make adjustments to the plan*

STAGE 4: EXECUTE TTP DEVELOPMENT/REVISION

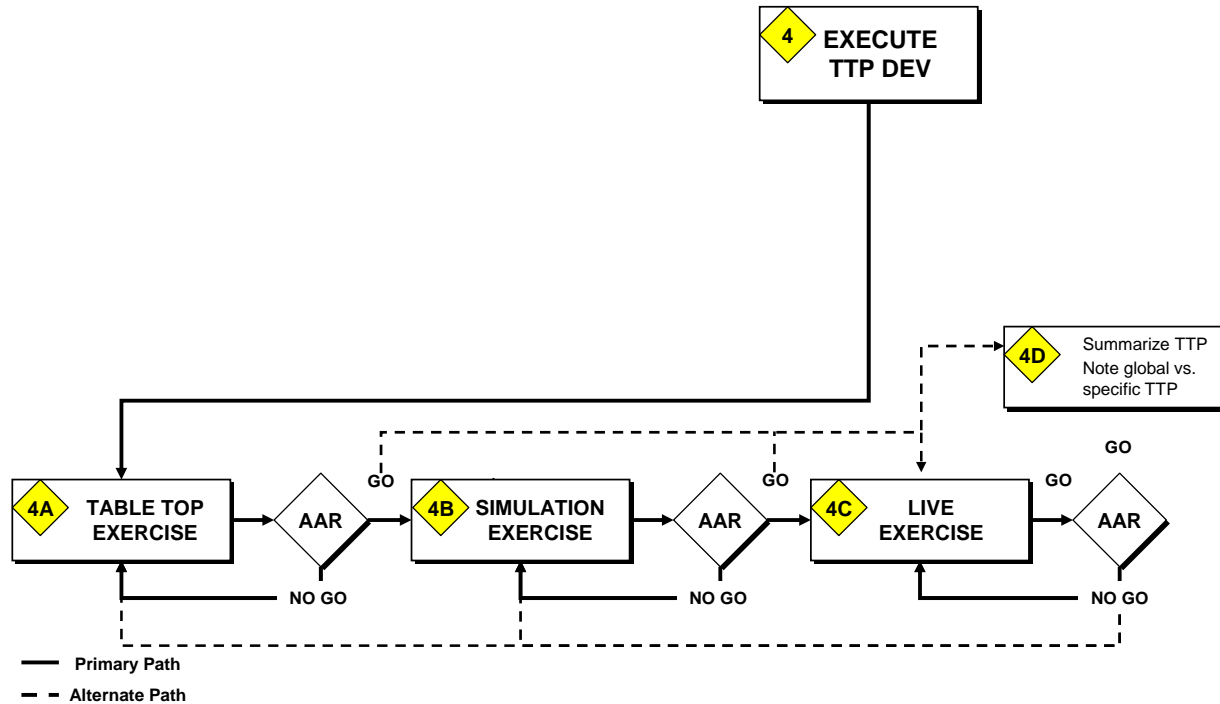


Figure 1-5: TTP Execution Diagram

4A MAPEX/TABLE TOP EXERCISE (Ref: TC 25-20, A Leaders Guide to After Action Reviews and FM 5-0, Army Planning and Orders Production)

GENERAL INFORMATION

- Exercise schedule for a session (See Table 1-1 for sample schedule)
- Time allocated for each group: full day, to capitalize on “sunk” costs (time)
- Grouping of participants: Minimum – Key Leaders
- Allocation of facilitators: 1

Coordinate for the following personnel who are required for TTP development execution:

- Exercise facilitator
- Leader
- Participants
- Note Taker/Observer (optional)

EQUIPMENT AND MATERIALS

- List of Equipment and Materials
- Tactical maps and overlays

- Poster and notebook paper
- *Development Support Package* including tactical materials (Appendix C)
- Tactical communication emulators (one per participant)
- Handouts with orientation slides and vignette materials (one per participant)
- Copies of sample set of TTP
- Copies of TTP developed from previous sessions
- *TTP Development/Revision Worksheets* (Appendix B-2) (four copies)
- Digital audio recorders with batteries and microphones
- Digital camera (used to photograph supporting materials such as participant sketches)

WELCOME. The facilitator welcomes the unit, identifies himself as the facilitator, and prepares them for the exercise (job aid: Appendix B-1, *Facilitator's Execution Plan*)

ORIENTATION. The participants and leader read the orientation materials (Appendix A) to prepare for the exercise

NOTE. All times listed in the *Timeline* of Appendix B-1 are recommended times only. Times may be adjusted according to the needs and schedule of the unit.

- Distribute participant materials
- Consult the session plan to determine if participants are developing TTPs or reviewing/refining TTPs
- Have participants review the orientation materials in paper versions or on a computer. The orientation should contain the following at a minimum:
 - Purpose of the exercise
 - Process to conduct TTP development
 - TTP development example
 - Reason for the need to develop/revise a TTP for that unit
 - Scenario overview, broad road to war material
 - Vignette overview, specific to the tasks to be executed
 - Table Top Wargaming Session (15 min per vignette)
- Participants read the vignette description, and then the facilitator issues the FRAGO to the leader. After the participants conduct abbreviated troop-leading procedures, the facilitator signals for the exercise to begin.
- The participants role-play in character as they talk through the tactical situation.
- The leader starts the exercise by telling each leader/participant what he would do. A Soldier playing the OPFOR describes his actions and then the leader takes his turn. Through this back and forth between BLUFOR and OPFOR, the exercise is executed to ENDEX.

- The facilitator ensures that participants share ideas and asks probing questions. After the vignette ends, the facilitator declares ENDEX.
- Participants develop OR review/refine TTPs.
- Participants then repeat the steps to complete the remaining exercises.

4 B. SIMULATION EXERCISE (Ref: Local Simulation Center SOPs and TC 25-20, A Leaders Guide to After Action Reviews)

GENERAL INFORMATION

- Exercise schedule for a session (See Table 1-1 for sample schedule)
- Time allocated for each group: full day, to capitalize on “sunk” costs (time)
- Grouping of participants: Minimum - Key Leaders, Maximum – the entire company
- Allocation of facilitators: 1
- Allocation of workstations: 1 per participant, plus 1 for exercise control
- Allocation of workstation operators: 1 per workstation

COORDINATE FOR REQUIRED PERSONNEL: The following personnel are required for TTP development execution:

- Exercise facilitator
- Leader
- Participants
- Note taker/observer (optional)
- Workstation operators (one per workstation as required)

EQUIPMENT AND MATERIALS

- List of equipment and materials
- Networked simulation workstations
- Poster and notebook paper
- Development Support Package including simulation files
- Tactical communication emulators (one per participant)
- Handouts with orientation slides and vignette materials (one per participant)
- Copies of sample set of TTPs
- Copies of TTPs developed from previous sessions
- TTP Review/Refinement Data Collection Package (four copies)
- Digital audio recorders with batteries and microphones
- Digital camera (used to photograph supporting materials such as participant sketches)

PREPARATION

WELCOME

PARTICIPANT ORIENTATION (30 minutes): The facilitator explains the contents of the participant handouts at each workstation. These may include the orientation (Appendix A), overview, agenda, situational briefing, OPORD and map, the list of equipment capabilities, etc. The facilitator states, “*These materials are available for your use as you work through the simulation vignettes. Right now, we want you to view the Orientation on your workstation and ask questions as you go along.*” The facilitator helps each participant start the Orientation and answer questions as they arise. After the last participant finishes, the facilitator asks for questions.

PRACTICE SESSION (30 min)

TTP DEVELOPMENT/REVISION SESSION (1 hour per vignette)

- Participants read the vignette description, and then the facilitator issues the FRAGO to the leader. After the participants conduct abbreviated troop-leading procedures, the facilitator signals for the simulation vignette to begin.
- The participants role-play in character as they view tactical events on workstation displays. Each participant provides directions to the workstation operator and communicates tactically with other participants, as appropriate.
- The facilitator ensures that participants think aloud and asks probing questions. After the vignette ends, the facilitator declares ENDEX.
- Participants develop OR review/refine TTP.
- Participants then repeat the steps to complete the remaining vignettes.

WRAP UP

- Facilitator collects all materials from participants
- Facilitator answers participants’ final questions and explains the payoff
- Facilitator says, “*This completes our session. Thank you for your help.*”
- Facilitator releases participants
- Facilitator labels and files all paperwork in appropriate folders
- Facilitator and workstation operators prepare for next session when one follows on the same day

4 C. LIVE TRAINING EXERCISE (Ref: Appropriate MTP/ARTEP for the type of unit, TC 25-10, A Leaders Guide to Lane Training, FM 7-0, Training the Force, TC 25-20, A Leaders Guide to After Action Reviews)

GENERAL INFORMATION

- Resources required for type of training lane to be executed
- Conduct rehearsal at all levels (as time permits)

- Conduct exercise
- Conduct TTP-focused AAR
- Conduct retraining (or prepare for next iteration)

COORDINATE FOR REQUIRED PERSONNEL: The following personnel are required for TTP development execution:

- Exercise director (if not the facilitator)
- Facilitator
- Leader
- Participants
- Observers/Controllers (Note takers)
- OPFOR and other exercise support personnel

EQUIPMENT AND MATERIALS

- List of equipment and materials for a unit live exercise may include all MTOE equipment
- Recording media (electronic, paper, etc)
- Development Support Package
- Tactical communications equipment for exercise control (not unit communication equipment)
- Handouts with orientation slides (Appendix A) and scenario materials
- Copies of sample set of TTP
- Copies of TTP developed from previous session

PREPARATION (Time - TBD): Before the participants arrive, the facilitator and workstation operators should:

- Complete the checklist as specified in Step 1 of the *TTP Development/Revision Worksheet* (Appendix B-2)
- Check all tactical communications for proper operation; resolve technical problems and verify readiness
- Conduct radio checks
- Consult plan to determine if participants are developing TTPs or reviewing/refining TTPs
- The leader will direct his unit to conduct the orientation if they have not already done so during the previous two modes of training.
- Execute the exercise IAW either unit SOP or doctrinal manual for that type of unit.

Live training is more resource intensive and requires planning and resources that frequently are beyond the scope of a company. Most likely, the battalion staff will be involved in a live training

exercise from the beginning, and may incorporate more companies into the exercise or use it as a chance to execute METL training.

4 D. SUMMARIZE TTP

- *Note:* “Global” TTP: This is a TTP item that may apply beyond the level or organization that it was developed for. For example, a TTP that was developed for a specific platoon may be applied to all platoons across a company.
- *Note:* TTP specific to METT-TC conditions
- Apply TTP to applicable TSOP

Send the completed TTP summaries (including Appendix B-3, *TTP Conditions and Results Summary Worksheet*) to the next higher level of command for approval/staff vetting.

The process is now complete but may start again (at the assess stage) anytime the leader feels another forcing event has occurred.

STAGE 5: IMPLEMENTATION OF TTPS INTO THE UNIT’S TSOP

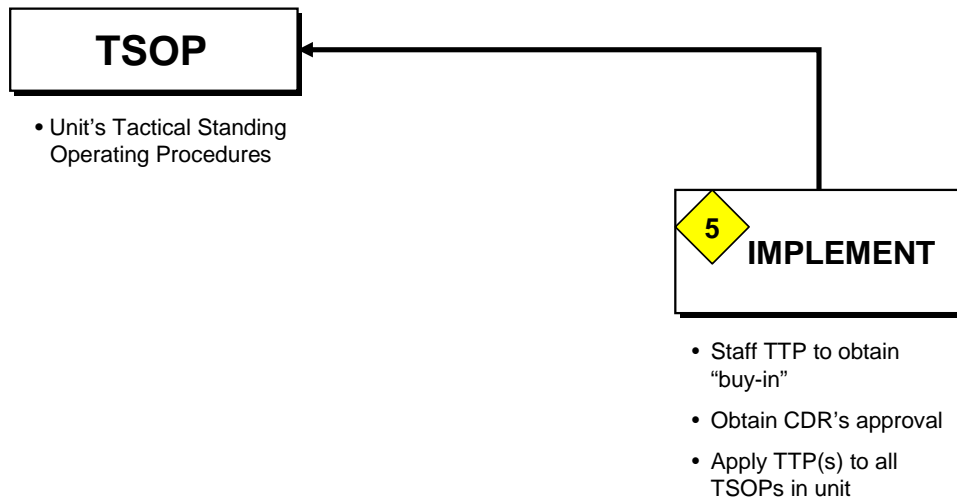


Figure 1-6: Implement TTPs

COLLECT FINAL OUTPUTS

- The exercises use worksheets (Appendix B-2) to be filled out during performance. The exercises also employ a series of questions organized around the supporting objectives for that exercise. Observation and note taking should be organized around the TTP-focused AAR question sheet, supplemented by the sample solutions where applicable.
- The TTP-focused AAR materials are the basis for organizing a review of the just-completed process. They are flexible in their implementation. Setting the tenor of the TTP-focused AAR is up to the leader who will generally be the training coordinator. The leader should establish his own criteria for performance and feedback based on the expectations, the experience, and the performance posture of the unit. The questions are provided as an aid to interpret the tasks and to focus the TTP-focused AAR, if the leader

chooses to use them. Training Circular (TC) 25-20, A Leader's Guide to After-Action Reviews should serve as a basis for the leader preparing to conduct training.

DEVELOP TTP SUMMARY

Note: “Global” TTP: this is a TTP item that may apply beyond the level or organization that it was developed for. For example, a TTP that was developed for a specific platoon may be *applied to all platoons across a company*.

Note: TTP specific to METT-TC conditions

The leader sends the completed TTP summaries to the next higher level of command for approval/staff vetting. The approved TTP will be incorporated in the unit’s TSOP.

If the chain of command believes the entire force could use the TTP, they can submit the TTP to the Center for Army Lessons Learned. The process is now complete, but may start again with the assessment stage if the leader feels a forcing event has occurred again.

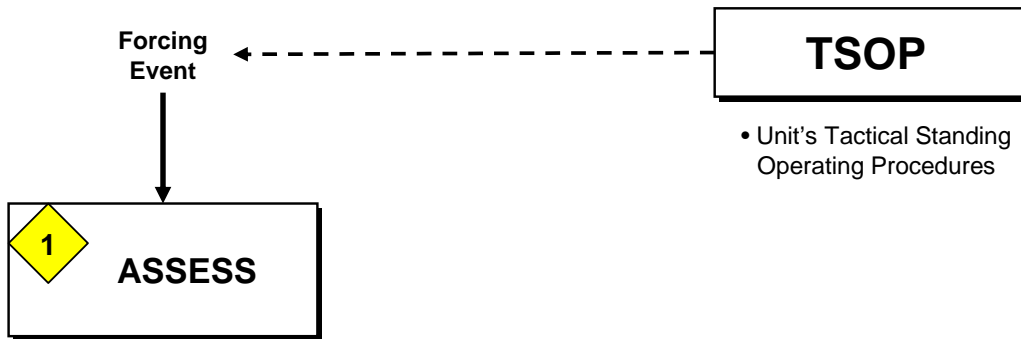


Figure 1-7: Forcing Event

CHAPTER 2 – FACILITATORS GUIDE

This guide focuses on the role of the facilitator in the TTP development process. It provides specific guidance to assist the facilitator in planning and preparation for this crucial role as a “cross trainer” and provides a framework for steering the unit toward developing or revising effective TTPs. The chart in Figure 2-1 details how the process flows starting with the unit leader making an assessment that there is a need for either TTP development or TTP revision.

Purpose

The purpose of The Facilitator’s Guide is to set forth guidelines for the expectations, roles and responsibilities of the facilitator as he guides the unit through the development process.

What is a TTP?

Tactic: The ordered arrangement and maneuver of units in relation to each other and/or to the enemy in order to use their full potentialities. (Doctrinal Definition)

Technique: The general and detailed methods used by troops and/or commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel. (Doctrinal Definition)

Procedure: Standard and detailed courses of action that describe how to perform a task. (Doctrinal Definition)

TTPs (Composite): “Tactics, Techniques, and Procedures refer to general and detailed methods for using equipment and personnel to accomplish a specific mission under a particular set of METT-TC conditions.” (Non-Doctrinal Definition)

Limitations

Specific TTPs have limitations because they are tied to specific missions and METT-TC conditions. However, some general goals guide the development and implementation of TTPs. For example, minimize harm to Soldiers and non-combatants, maximize the usefulness of your equipment to accomplish the mission, minimize damage to infrastructure. When developing TTPs, phrase statements that go beyond the “here and now.”

Responsibilities

The facilitator is responsible for guiding the TTP development process and is not an evaluator. The leader and participants must understand that the exercise will be used to develop TTPs for their unit and is *not* an evaluation of the unit. During the exercise, the facilitator focuses on the overall method and process used. He makes decisions by coordinating with the unit leader and ensures the unit focuses on the development process. If a potential conflict with an established TTP arises, he ensures the leader understands that coordination with the chain of command on “Emerging TTP” must be accomplished prior to implementation. The facilitator must also ensure that the unit uses METT-TC as the conditions under which an “Emerging TTP” is executed and evaluated.

Note: In this document the pronoun “he” refers to both males and females.

FIVE STAGE TTP DEVELOPMENT PROCESS

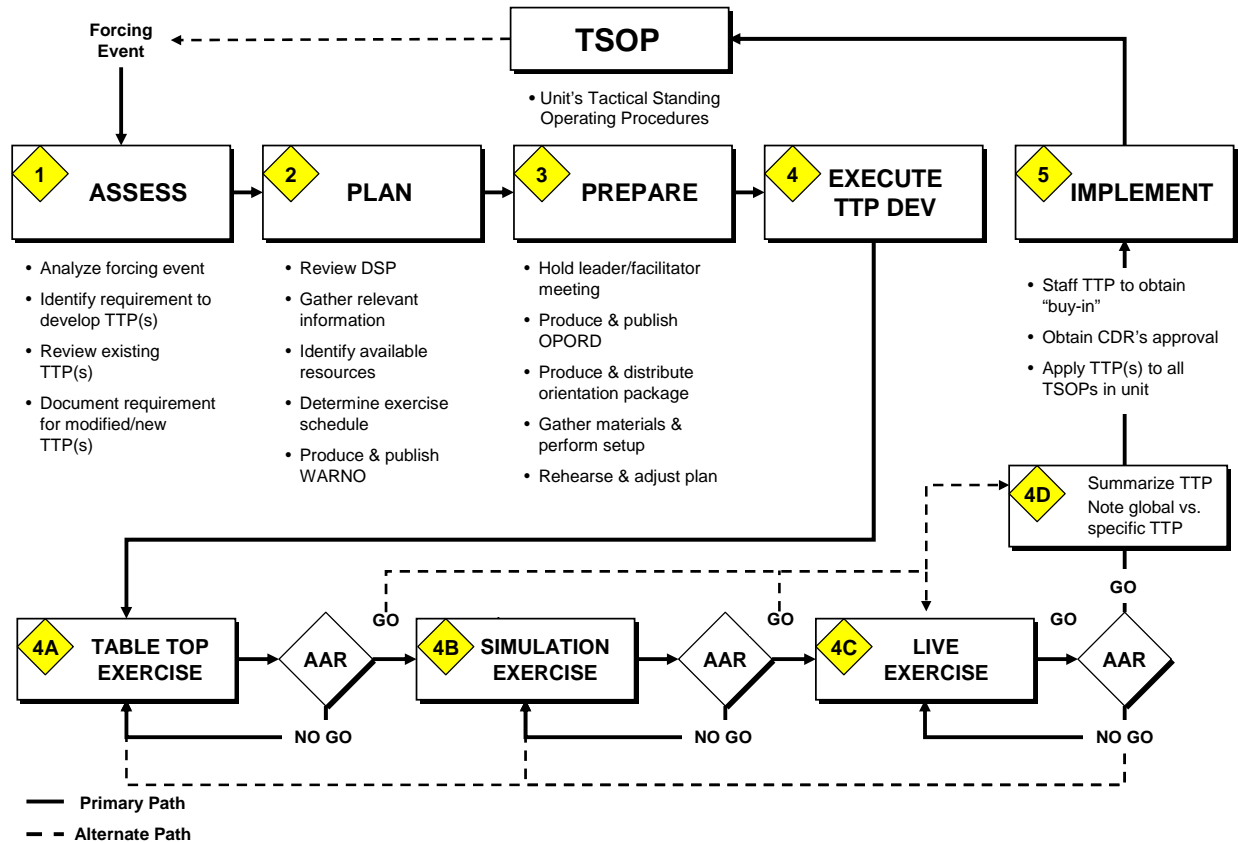


Figure 2-1: TTP Development/Revision Flowchart

STAGES OF THE DEVELOPMENT PROCESS

STAGE 1 – ASSESS: The leader determines that his unit requires a new set of TTPs, or that the current set of TTPs is not adequate or requires change.

STAGE 2 – PLAN: The leader has most of the responsibility during this stage of the process. He asks for or nominates a facilitator from his higher headquarters. The facilitator coordinates with/assists the leader.

STAGE 3 – PREPARE: The facilitator develops the orientation for the unit. The orientation must contain all the information participants will need to accomplish the MAPEX/Table Top, simulation, and live execution of the development/revision process.

STAGE 4 – EXECUTE: The leader provides the personnel and applies his guidance and tactical expertise, but the facilitator has most of the responsibility for the exercise during this stage of the process. He runs the exercise, serves as time keeper, and modifies the schedule depending on the outcomes of the MAPEX/Table Top, simulation, and live execution of the development/revision process.

Stage 4A - *Tabletop Exercise*: Stage 4a- Participants wargame the proposed TTP. At the conclusion of the exercise, the participants conduct an AAR to determine if the TTP execution was a Go/No Go. If the outcome of the AAR is a Go, the leader may choose to bypass the simulation and live exercise, and proceed to stage 4D; however, completion of all TTP stages is recommended.

Stage 4B - *Simulation Exercise*: Participants complete a simulation exercise to further evaluate the TTP. The leader may choose to bypass the live exercise and proceed to stage 4D; however, completion of all TTP stages is recommended

Stage 4C - *Live Exercise*: Participants conduct a live training exercise to validate the results of the prior exercises in a realistic environment using the equipment and personnel required for the TTP.

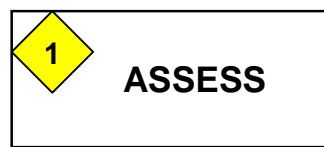
Stage 4D - *Summarize*: The leader summarizes the results of stages 4A-4C and sends the completed TTP summaries to the next higher level of command for approval/staff vetting. If a company conducts TTP development, then the battalion commander and his staff verify and approve final TTPs for inclusion in the unit's TSOP.

The process is now complete, but may start again with the assess stage if the leader feels a forcing event has occurred.

STAGE 5 – IMPLEMENT: The leader captures the TTPs that were developed or revised and applies them to unit SOPs, etc. The facilitator maintains all develop/revision documentation until it is given to the leader.

STAGE 1: ASSESS THE NEED FOR TTP DEVELOPMENT/REVISION

The process starts when the unit leader determines there is a need to either develop new TTPs or revise old ones. This assessment is driven by a forcing event described later in this chapter. Once the requirement to develop TTPs is made, Stage 1 is over and Stage 2 (Planning) begins.



- Analyze forcing event
- Identify requirement to develop TTP(s)
- Review existing TTP(s)
- Document requirement for modified/new TTP(s)

Figure 2-2: Assessment

- One of the following “forcing events” may drive the development of a new TTP or modification of an existing TTP.
- Lack of existing TTPs
- New piece of equipment or new type of personnel. Soldiers have been issued several new pieces of equipment that have never been widely used. This has created a need for rapid TTP development or a unit may be manned with a new Military Occupational Specialty (MOS).
- Change in the Mission Essential Task List (METL)
- Change in the tactics, techniques, and procedures or some combination of the three.
 - Tactics
 - Task organization change. Units often receive an attachment that may alter the way they “normally” execute a specific mission. An example would be the attachment of an engineer detachment to a tank company. This attachment gives the tank company commander added capabilities to detect and breach obstacles and/or minefields. This will drive the leader to reorganize his unit to match this capability.
 - Mission change. Prior to deployment, a unit revises its TTP for transitioning from a movement to contact to a hasty attack. It is common for a unit to be given a new mission or change in mission due to enemy action. Therefore a revision of an existing TTP is warranted.
 - Techniques
 - Updating tasks. Updated information may come from proponent schools who maintain the task databases.
 - Procedures. Procedures only change if the task changes or equipment changes.

STAGE 2: PLAN FOR TTP DEVELOPMENT/REVISION



- Review DSP
- Gather relevant information
- Identify available resources
- Determine exercise schedule
- Produce & publish WARNO

Figure 2-3: Plan for TTP Development

The unit reviews the DSP and nominates a facilitator or asks its higher HQ for one to be attached. The facilitator will:

Review the example orientation (Appendix A)

- The facilitator begins work on the orientation package that includes at a minimum:
 - Introduction/purpose. This comes from the unit leader.
 - Reason for the development/revision. This is the forcing event that caused the TTP development/revision to occur.
 - Process to be used to develop/revise TTPs. (The method used in this DSP)
 - MAPEX/Table Top. The vignette used in the table top should be the same as in the simulation.
 - Simulation. Decide on the type of simulation to be used up front, so that the facility can be reserved and can provide simulation specific information.
 - Live training. How will the live training occur? Is it tied into another exercise?
 - TTP Development. (The method in this DSP)
 - Scenario and Vignette Overviews. These are tied to the type of simulation and facility. The facility may already have prepared vignettes. The vignettes may require adjustments that will appear in the orientation.
- Review “a way” to conduct a MAPEX/Table Top exercise. (Ref: TC 25-20, A Leaders Guide to AARs)
- Review “a way” to conduct a simulation (As an example: VBS2 ARMY)
- Review “a way” to conduct live lane training. (Ref: TC 25-10, A Leaders Guide to Lane Training)

- Review and be prepared to develop or revise TTPs
- Understand the TTP review methodology
- Understand the TTP development/review documentation
 - *Facilitator's Execution Plan* (Appendix B-1)
 - *TTP Development/Revision Worksheets* (Appendix B-2)
 - *TTP Conditions and Results Summary Worksheet* (Appendix B-3)
- Understand the TTP development/review documentation. (Ref: TC 25-20, A Leaders Guide to AARs)
 - TTP-focused AAR key points
 - Facilitate effective brainstorming
 - Remain focused on why the unit is conducting the AAR. Do not discuss the wins or losses. Discuss the development of the TTPs.
 - This is not an evaluation of the unit
 - TTP-focused AAR Format
 - State the Mission
 - Then discuss the who, what, when, where, how, and why of the operation pertaining to the new piece of equipment, new personnel, etc.
 - Summarize the TTPs into concise statements that answer the who, what, when, where, how, and why.
- Review Center for Army Lessoned Learned (CALL) related documents, at <http://call.army.mil/>
- Review example TTPs

Gather relevant information.

- Technical data (equipment related information such as: how/ high fast does a UAV fly, what are its flight characteristics).
- Technical manuals (for each piece of equipment to be used).
- Rapid Fielding Initiative documentation
- Existing related TTP and doctrine (Four most commonly used sources are below).
- Center for Army Lessoned Learned (CALL). The Center for Army Lessons Learned collects and analyzes data from a variety of current and historical sources, including Army operations and training events, and produces lessons for military commanders, staff, and students. CALL disseminates these lessons and other related research materials through a variety of print and electronic media.
- Battle Command Knowledge System (BCKS). The purpose of BCKS is to provide a means to enhance learning and ensure timely development of situational understanding by members of US Army organizations operating in a Joint, Interagency and Multinational

environment. BCKS should ultimately facilitate the development of adaptive leaders who experience repetitive operational situations either virtually or through shared professional experiences, which will build the necessary frames of reference for intuitive decision making.

- Participating unit's Tactical Standing Operating Procedures (TSOP) or an approved TSOP for a similar unit.
- Reimer Digital Library (Online)

Identify all available resources required to run a MAPEX/Table Top exercise (Same as a simulation but on a smaller scale).

- Facilitator
- Participants (leaders only, or up to the entire company)
- Facility (conference room-like facility)
- Data capture tools (white board, butcher paper, computer, etc)
- DSP, example TTPs, reference materials
- Review how to facilitate a wargaming session of possible TTPs using FM 5-0, 3-149 as a guide. The eight steps of wargaming follow:
 - Gather the tools
 - List friendly forces
 - List assumptions
 - List known critical events and decision points
 - Determine evaluation criteria
 - Select the wargame method
 - Select a method to record and display results
 - Wargame the battle and assess the results.

Identify all available resources required to run a simulation exercise.

- Facilitator. The facilitator has major responsibilities both before and during the exercise. They include: assisting the unit leader in the coordination and planning of the exercise; controlling the flow and progress of the mission events during the exercise; and role-playing the Army Forces (ARFOR) commander. A current or former commander or someone of comparable operational and training experience would be well suited to the role. Because of his critical role in exercise planning and preparation, it is imperative that the facilitator be appointed as early as possible in the planning process.
- A facilitator needs to take an active role in the TTP development process. Participants need to be guided through the TTP development process. Participants may discuss key TTPs during the AAR without being aware of it. The facilitator needs to listen attentively to the participants, focus their attention on key decision points and actions taken.

- A facilitator needs to guide the participants through effective brainstorming sessions. Effective brainstorming involves:
 - First, recording all ideas without judgment
 - Encourage generating/creating unique solutions
 - Encouraging contributions by all members
 - Identifying ideas that can be combined
 - Reviewing, vetting, and prioritizing ideas.
- Participants
- Primary Training Audience. Example at the company level would be: the company/team commander, the platoon leaders.
- Primary Participants – Example at the company level would be: the primary participants will be all members of the company/team.
- Supporting Audience. Other participants include members of supporting units. These personnel role play their organizations and operate from simulation workstations. In general, these supporting audience members will not be the focus of observations or feedback. However, they may participate in after action reviews (TTP-FOCUSED AARs), both to provide information and to learn from their own observation of the TTP-Focused AAR.
- Simulations
- Desktop simulation
 - Training Support Packages - TSP
 - Commercial off the Shelf Games - COTS Games. The interactive digital medium of computer games holds promise for application in the realm of military simulation. The Army initiative to leverage commercial computer games for military applications is growing; several posts have adopted modified commercial games to enhance classroom instruction and are using them to supplement their robust simulation suites.
 - Unit Computer Labs
- Battle Command Training Centers – BCTC. The current models in the Army Constructive Training Federation (ACTF) include: CBS, Tactical Simulation (TACSIM), Combat Service Support Training Simulation System (CSSTSS), Joint Conflict and Tactical Simulation (JCATS), Digital Battlestaff Sustainment Trainer (DBST), Warfighters Simulation (WARSIM), WARSIM Intelligence Model (WIM) a TTP-Focused AAR tool (currently Vision XXI), the Joint Deployment Logistics Model (JDLM) and One Semi-Automated Force (OneSAF). Two other constructive simulations, BBS and Janus, can be used for collective training.
- Supporting personnel and equipment. Battle Command Training Analytics and Matrix provides the analytics for personnel and classroom requirements needed for digital training. Using the Fort Hood BSTF model, a support staff of 27 personnel is required at each installation to maintain and operate a standard battle staff training facility. Five

individuals perform the Operations/Administrative functions such as a facility manager, operations officer, property/security, and administrative support. Twenty personnel provide instruction, technical support and simulation training support. A dedicated staff provides the capability for any unit to train with little or no impact on the unit. The expertise to interface simulations and provide continuous training support is currently not available in tactical units. The requirement for 27 personnel is based upon a capability to support two battalion-size units conducting training concurrently with no augmentation to the support staff.

- Facilitator/Exercise Director. This person has the most influence on the quality of the exercise. In addition to completing his numerous responsibilities described in the guide, the person selected for this position must be able to manage the unexpected situations that inevitably arise during the course of planning, preparing, and executing the exercise. The facilitator/exercise director must attend to the problems that arise to keep the exercise on track, supporting the objectives. During the exercise he has training options, key advisor inputs to consider, and the use of tools and techniques at his disposal to implement decisions that have a direct effect on the training. The exercise director runs the exercise so the commander can focus his attention on training the unit. These are among the reasons the exercise director should possess the experience and insight of a senior officer, such as, an incumbent or former commander.
- Leader. It is not recommended that the unit leader serve as the exercise director. If he chooses to do so, he should at the very least appoint an assistant to serve as the controller during the conduct of the exercise itself. There are two reasons for this guidance:
 - The commander is considered a key participant and member of the target training audience during the exercise and should be completely immersed in his role as the unit leader.
 - The individual who controls the flow and progress of the exercise may find it difficult to transition to a functioning member of the training audience.
- Observers. The observers provide feedback to the battalion staff and the unit leaders in the training audience. They will probably not be a permanent observation team and will likely have to be tasked from another unit. They should have battalion and/or company level experience depending on the observer position they are filling.
- Role-players. Role-players support the exercise from the simulation workstations by playing the roles of the unit's subordinate and supporting units (Blue Force [BLUFOR] role players), brigade staff (exercise control [EXCON]), and threat and civilians. Significant resources and coordination are required, depending on the exercise scenario, to script desired incidents and events during exercises. Role-play instruction development therefore, is a challenge for all exercise planners. Role player instructions and recommended characteristics should include at a minimum:
- Role Player Instructions and Recommended Characteristics:
 - A description of the contemporary operational environment (COE) to include demographics.

- A discussion of the scenario, a scenario timeline, areas to be occupied (who, what, where, when, and duration).
- Personal profiles
- Group profiles with attitudes toward BLUFOR and each other.
- Develop role-players to represent any/all external organizations required by the COE conditions and planning factors.
- The BLUFOR role player positions are best filled by the unit's subordinate personnel. While there is no planned observation and feedback system for role players, the opportunity exists for role players to receive valuable training.
- The roles of EXCON members who represent the brigade staff are best filled by staff officers or assistants who perform those functions on the higher headquarters /installation staff.
- The threat and civilian controller should be someone with experience representing a contemporary operational environment threat.
- Interactors. The simulations interactors serve as the role players' agents in running the simulation. There will be threat, civilian, and BLUFOR interactors. They should receive simulations training.
- Training Support. The installation's battle simulation facility manager is the key advisor on training support. He is responsible for assisting in exercise support planning, coordinating all training facility support, JCATS training and the control workstation (CWS). During the exercise, this person is the exercise director's assistant for control of the role played troop and platoon workstation teams.
- Simulation center and staff. The exercise requires the support of an established simulation center that has run battalion-level exercises using JCATS. The staff of the simulation center should be familiar with the general capabilities and characteristics of this type of exercise.
- The permanent staff at the simulation center should be qualified to use JCATS to meet exercise requirements. They should have an existing training program that they use to train JCATS interactors.

Sample Exercise Schedule

Table 1-1: Sample Exercise Schedule

<u>D - 15 through D - 1</u>
Set up and input initial tactical situation
Set up communication and workstation maps
Conduct simulation train-up (role-players)
Conduct OC training (key events, exercise training objectives, and collection plan and TTP-Focused AAR input)
<u>D through D + 7</u>
Conduct the simulation exercise
Conduct the final TTP-focused AAR
Publish the exercise report with developed TTPs

Sample: Exercise Requirements Planning Milestones

Table 1-2: Sample Exercise Milestones

Exercise director is announced and the Exercise Directive is issued
Conduct Initial IPR and finalize training objectives
Finalize primary training tasks
Task controllers and player/controllers
Assign controller tasks
Identify contenders
Identify exercise location
Identify observer/evaluator requirements
Finalize task organization of friendly forces
Finalize task organization of contender forces
Finalize outside actors and role players
Complete initial draft of the exercise schedule
Finalize personnel requirements
Produce scenario maps
Begin OPORD and scenario development
Finalize OPORD and scenario
Finalize task organization
Approve exercise training program
Approve exercise control plan
Approve after action review (TTP-focused AAR) methodology
Train players and controllers on Spectrum
Issue OPORD
Review database
Preview communications plan
Review battle simulation center (BSC) setup plan
Conduct Briefback on OPORD
Conduct exercise and develop TTPs
Conduct formal TTP-focused AAR

STAGE 3: PREPARE FOR TTP DEVELOPMENT/REVISION

Produce and publish a warning order for all participants and support personnel.



- Hold leader/facilitator meeting
- Produce & publish OPORD
- Produce & distribute orientation package
- Gather materials & perform setup
- Rehearse & adjust plan

Figure 2-4: Prepare for TTP Development

Hold leader / facilitator meeting to:

- *Identify training objectives.* Identify, publish, and disseminate specific training objectives to the facilitator and participants. The purpose of training objectives in a MAPEX/Table Top exercise is threefold. First, they establish the tasks to be trained. Second, they define the conditions under which the unit must be able to perform those tasks. Third, they define the standard by which performance will be measured. The performance objective should bridge the performance gap (in equipment use or personnel function) that results from the lack of a TTP or from an out-of-date TTP. Performance objectives allow the unit to operate or train at a higher level, and help the unit get the most from live training. Training staff techniques and procedures at home station is a good example of training in preparation for the field.
- *Select Vignettes.* Vignettes selected by leader.
- *Decide on a scenario.* The unit deploys as part of Army Forces (ARFOR) in response to small/medium/large-scale contingency in a fictional country. Example scenarios include:
 - *Multi-Level Training Scenario.* Multi-Level Scenario 1.0 (MLS) is a defense planning scenario (DPS) / multi-Service force deployment (MSFD)-like major combat operation (MCO) scenario in a fictitious Geographic Combatant Command (GCC) area of responsibility. The U.S. land forces in the scenario include one Corps, three Divisions, three Heavy Brigade Combat Teams (HBCT), five Stryker Brigade Combat Teams (SBCT), five Infantry Brigade Combat Teams (IBCT), three Combat Support Brigades (CSB), four Combat Aviation Brigades (CAB), two Battlefield Surveillance Brigades (BFSB), and theater assets. U.S. air and sea assets include a carrier strike group, three air expeditionary forces, two marine expeditionary brigades, eighteen U.S. Air Force

fighter squadrons, and six bomber elements. Coalition forces include a light infantry brigade. The U.S. led coalition's mission is to conduct offensive operations to reestablish an ally's border following an incursion from the threat country. The coalition will defeat the threat country forces; enforce a UN resolution calling for CBRNE inspections and restore regional stability. MLS 1.0 is developed to support the Army's modular force, FCS and spin outs, EBCT testing, and other TRADOC combat development issues.

- Caspian Sea Scenario. The Caspian Sea scenario involves competing regional interests, and eventually war, over oil and natural gas. Forces seized territory near an important pipeline. After diplomatic efforts failed to resolve the situation, American troops were sent to the region. There had been 30 days of intensive combat, with the Army's Objective Force being the key maneuver element that's come against the Red force. The Red air force is unique in the Caspian scenario. It's comprised entirely of unmanned aerial vehicles, almost 1,000 of them. They used them as 'niche' technology against the Army's Objective Force, which is a very capable force. The Army's Objective Force in the Caspian Sea scenario is very rapidly deployable and gets to the battlefield with a lot of capabilities, especially in communications and intelligence-gathering.
- Local Scenario. Battle Command Training Centers (BCTC) may have scenarios linked to local training areas with fictitious enemy they might encounter in any theater. These will likely be easier to facilitate when combining simulated and live training.
- Decide on a tactical location. Most simulations use a fictitious country with a background conflict to set the timeline of the scenario. The simulation will more likely use actual terrain with fake names. Pick terrain/location that meets the needs of the TTP development. Vary the terrain type by desert, wooded, open, flat, hilly, etc.
- Decide on threat and civilian types. The scenario's threat and civilian personnel should include an array of indigenous personnel (at least two major ethnic groups and several minorities), factions (political parties, special interest groups, paramilitary, and organized crime), unconventional forces (special purpose forces) and conventional forces. The exercise should focus on the two major ethnic groups, factions, and unconventional forces. Optional fragmentary orders (FRAGO) introduce conventional threat forces initiating major theater war.
- Decide on the training environment.
- Vignette tailoring. Leaders can adjust METT-TC factors to vary conditions in the vignettes. Additionally, each unit must adjust the vignettes to match their capabilities. Minimal adjustments will be required during the MAPEX/Table Top exercise. However, if the leader needs to adjust the simulation (new models, new terrain), the simulation center staff must assist him. During live exercises, the director or senior leader must decide if changes to the vignettes are possible if the unit developing TTPs is part of a larger exercise.
- *Select mode*
- MAPEX/Table Top. This is by far the easiest and least time consuming model to use. Small Group Exercises (SGE), MAP Exercises, and Staff Exercises are available at most BCTCs.

- Simulation. Simulation provides a more robust environment for exercises than other modes; however, simulations require additional personnel and equipment that are external to the unit. Further, simulations take more time to complete than other modes. Commercial off the shelf (COTS) first person shooter games such as “Ambush” and “VBS2 Army” have been adapted for military training.
- Live. Live training is defined as “a representation of military operations, using military personnel and equipment that simulate experiences achieved during actual combat conditions.” (Ref: AR 25-10, A Leaders Guide To Lane Training, page 99) For example, if the training audience is a staff, they are put in a staff setting and provided the cues for performance that they would normally get in any operational situation. Live simulation, like other simulations, allows modifications of conditions to meet the training circumstances. Live training has long been thought of as “the way” to do training/exercises. But, it does come at a higher cost. Land has to be scheduled, fuel and ammunition costs are very expensive, and an OPFOR has to be trained. The observer/controllers may have to come from other units in the higher headquarters organization.
- *Select the simulation type*
- Commercial-Off-The-Shelf (COTS) Games/Simulations
- Maneuver Control System (MCS)/Blue Force Tracker (BFT)/Force XXI Battle Command, Brigade and Below (FBCB2).
- Close Combat Tactical Trainer (CCTT), Aviation Combined Arms Tactical Trainer (AVCATT), Fire Support Combined Arms Tactical Trainer (FSCATT), Air Defense Combined Arms Tactical Trainer (ADCATT), and the Engineer Combined Arms Tactical trainer (ENCATT).
- Joint Conflict and Tactical Simulation (JCATS)
- *Review the process*
- *Produce and publish the final plan*
- *Produce and provide orientation information.* The packet should stand alone and contain information relevant to the cause of the TTP development or revision. Work on the orientation started in the plan stage of the process.
- *Gather materials and perform set-up*
 - Doctrinal materials: All applicable Army Field Manuals, Training Circulars, Pamphlets, and Guides.
 - Unit TSOPs: All tactical SOPs from the battalion to the lowest section in the unit.
 - Recording equipment (audio, visual, written). It will be critical to record the data from the simulation to get a clear picture about what occurred and did not occur.
 - Operations Plan (OPLAN)/Warning Order (WARNO)/Operations Order (OPORD)/Fragmentary Order (FRAGO).
 - Zaps/Graphics/Overlays

▫ ABCS Digital Systems:

- MCS
- BFT
- FBCB2

- *Rehearse and make adjustments to the plan*

STAGE 4: EXECUTE TTP DEVELOPMENT/REVISION

The facilitator drives the process during execution.

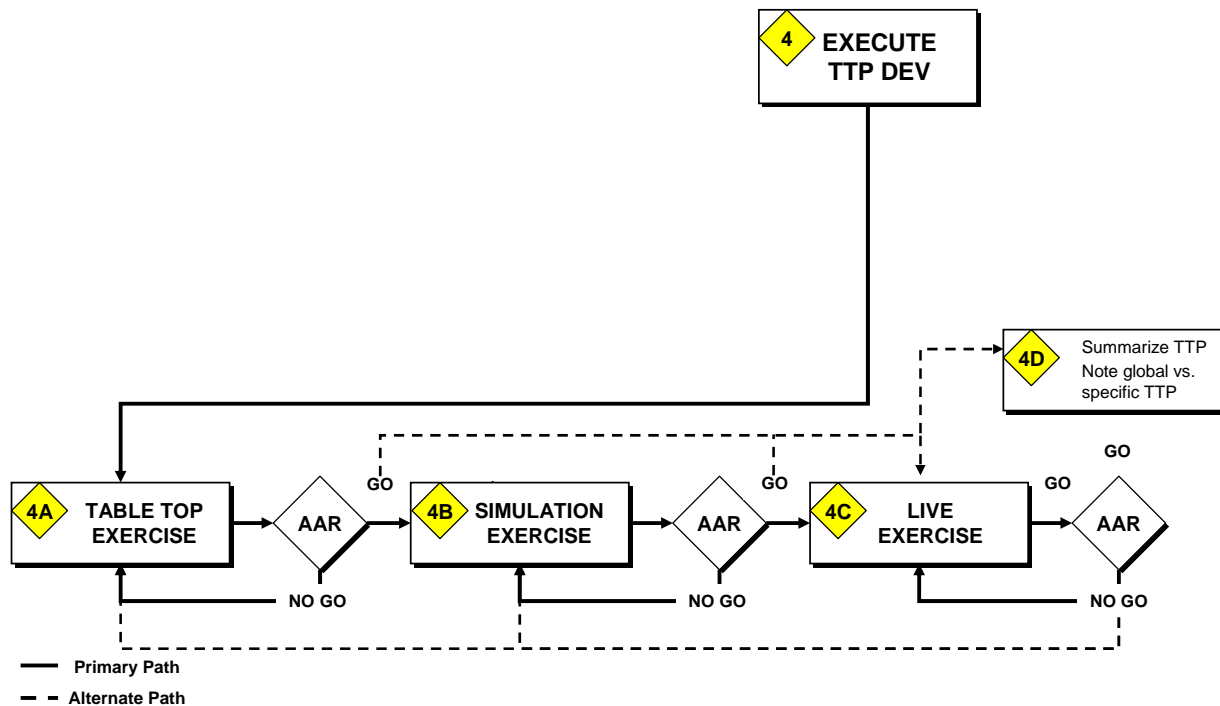


Figure 2-5: TTP Execution Diagram

MAPEX/TABLE TOP EXECUTION (Ref: TC 25-20, A Leaders Guide to After Action Reviews and FM 5-0, Army Planning and Orders Production)

Coordinate for the following personnel who are required for TTP development execution:

- Exercise facilitator
- Unit leader
- Participants
- Note taker/observer (optional)

EQUIPMENT AND MATERIALS

- List of equipment and materials

- Tactical maps and overlays
- Poster and notebook paper
- Development Support Package including tactical materials
- Tactical communication emulators (one per participant)
- Handouts with orientation materials (Appendix A) and vignette materials (one per participant)
- Copies of sample set of TTPs
- Copies of TTPs developed from previous sessions
- *TTP Development/Revision Worksheets* (Appendix B-2, four copies)
- Digital audio recorders with batteries and microphones
- Digital camera (used to photograph supporting materials such as participant sketches)

WELCOME. (5 minutes): Facilitator says, “Welcome to the TTP development exercise for _____ unit _____. My name is _____ and my workstation operator’s are _____, _____, and _____. The goal of this exercise is to develop tactics, techniques and procedures or TTPs for _____. You will learn more about _____ in your orientation materials. To develop the TTPs, we are asking you to role-play your assigned position in several scenario-based simulation vignettes. While watching a vignette play out on a computer workstation, you will be directing the workstation operator on the course of action to take for a given situation. Simultaneously, we want you to verbally share with us your thoughts and decisions regarding a chosen course of action and how _____ could best be employed to assist you in completing your mission. We may ask you questions from time to time. Overall, the session will take approximately 8 hours of your time. We would like to thank you upfront for your participation in this important exercise. Our ultimate goal is to enhance force effectiveness in the Global War on Terror. Do you have any questions?”

ORIENTATION (15 minutes). Before the participants arrive, the facilitator and unit leader should:

- Distribute participant materials
- Consult the session plan to determine if participants are developing TTPs or reviewing/refining TTPs
- Have participants review the orientation materials (Appendix A) either in paper versions or on a computer. It should contain the following at a minimum:
 - Purpose of the exercise
 - Process to conduct TTP development
 - TTP development example
 - Reason for the need to develop/revise a TTP for that unit
 - Scenario overview, broad road to war material
 - Vignette overview, specific to the tasks to be executed
 - When all have finished the orientation begin the Table Top Wargaming Session.
 - Table Top Wargaming Session (15 min per vignette):

- Participants read the vignette description, and then a facilitator issues the FRAGO to the Unit leader. After the participants conduct abbreviated troop-leading procedures, the facilitator signals for the vignette to begin.
- The participants role-play in character as they view the tactical situation.
- The unit leader starts the exercise by telling each participant what he would do in each situation as it arises. The Soldier playing the OPFOR describes his actions and then the unit leader takes his turn. Through this back and forth between BLUFOR and OPFOR, the vignette is executed to ENDEX.
- The facilitator ensures that participants think aloud and asks probing questions. After the vignette ends, the facilitator declares ENDEX.
- Participants develop OR review/refine TTPs.
- Participants then repeat the steps to complete the remaining vignettes.

SIMULATION EXERCISE (Ref: Local Simulation Center SOPs)

GENERAL INFORMATION

- Generic schedule for a session
- Time allocated for each group: full day, to capitalize on “sunk” costs (time)
- Grouping of participants: Minimum - 1 Company CDR, 3 Platoon LDRS; Maximum – the entire company
- Allocation of facilitators: 1
- Allocation of workstations: 1 per participant, plus 1 for exercise control
- Allocation of workstation operators: 1 per workstation.

COORDINATE FOR REQUIRED PERSONNEL: The following personnel are required for TTP development execution:

- Exercise facilitator
- Leader
- Participants
- Note taker/observer (optional)
- Workstation operators (one per workstation as required)

EQUIPMENT AND MATERIALS

- List of equipment and materials
- Networked simulation workstations
- Poster and notebook paper
- *Development Support Package* including tactical materials

- Tactical communication emulators (one per participant)
- Handouts with orientation materials (Appendix A) and vignette materials (Appendix C) (one per participant)
- Copies of sample set of TTPs
- Copies of TTP developed from previous sessions
- *TTP Development/Revision Worksheets* (Appendix B-2, four copies)
- Digital audio recorders and AAA batteries and microphones
- Digital camera (used to photograph supporting materials such as participant sketches)

PREPARATION (15 MINUTES): Before the participants arrive, the facilitator and workstation operators should:

- Complete the checklist as specified in Step 1 of the *Facilitator's Execution Plan* (Appendix B-1)
- Check all simulation workstations and tactical communication emulators for proper operation; resolve technical problems and verify readiness
- Conduct radio checks
- Cue up simulation vignettes and adjust sound volume
- Position and check audio recorders (have batteries ready as needed; make sure last session was downloaded to computer and backed up)
- Distribute handouts
- Consult session plan to determine if participants are developing TTPs or reviewing/refining TTPs

WELCOME (5 MINUTES)

- Facilitator says, “*Welcome to the TTP development exercise for _____ unit _____. My name is ____ and my workstation operator’s are ____, ____, and _____. The goal of this exercise is to develop tactics, techniques and procedures or TTPs for _____.* You will learn more about _____ in your orientation materials. To develop the TTPs, we are asking you to role-play your assigned position in several scenario-based simulation vignettes. While watching a vignette play out on a computer workstation, you will be directing the workstation operator on the course of action to take for a given situation. Simultaneously, we want you to verbally share with us your thoughts and decisions regarding a chosen course of action and how _____ could best be employed to assist you in completing your mission. We may ask you questions from time to time. Overall, the session will take approximately 8 hours of your time. We would like to thank you upfront for your participation in this important exercise. Our ultimate goal is to enhance force effectiveness in the Global War on Terror. Do you have any questions?”
- “The following is a brief overview of today’s schedule.”

Table 1-3: Sample Timeline

Timeline		
Step 1	Orientation	
	5 min	Purpose
	5 min	Capabilities
	5 min	Method/Process
	40 min	Tactical Situation
	5 min	Table Top Ex/Simulation Ex
	30 min	Practice Scenario/Vignette
	90 min	
Step 2	Table Top	
	10 min	TLP
	15 min	Wargame
	15 min	AAR
Step 3	40 min	Simulation
	10 min	TLP
	15 min	Simulation
	30 min	AAR
	55 min	
Step 4	Table Top	
	10 min	TLP
	15 min	Wargame
	30 min	AAR
Step 5	55 min	Simulation
	10 min	TLP
	15 min	Simulation
	30 min	AAR
	55 min	
Step 6	AAR Process	
	60 min	
Total Time Required		
	6 hrs	

- “We will have regular breaks, and the location of the restrooms is _____. If you have other specific needs, please let us know.”

PARTICIPANT ORIENTATION (30 MINUTES)

The facilitator explains the contents of the participant handouts at each workstation. These include the orientation (Appendix A), overview, agenda, situational briefing, OPORD and map, the list of equipment capabilities, etc. The facilitator states, “*These materials are available for your use as you work through the simulation vignettes. Right now, we want you to view the Orientation on your workstation and ask questions as you go along.*” The facilitator helps each participant start the Orientation and answer questions as they arise. After the last participant finishes, the facilitator asks for questions.

- Once all participants' questions have been answered, the facilitator provides the following directions for the vignettes.
- “You are going to participate in several simulation vignettes in which a _____ could be employed. As you play your assigned position, please describe your reactions, thoughts, and decisions as you work to achieve the mission while you direct the workstation operator. We are supplying devices to emulate tactical communication. It is important that you think aloud as you work and try to explain your decisions and actions through the vignette.”
- Feel free to consult the materials in your binders as needed. You are not being timed, but please move along in order to stay on schedule.
- Immediately following each vignette, we will conduct a brief review and ask you to develop (or review and vet) some TTPs.
- For those participants who are developing TTPs, you have a sample set of TTPs in your orientation materials. Please review these and use these as a model to develop your own. Take a moment to look over these now before we begin.
- For those participants who are reviewing/refining TTPs, you have a set of previously developed TTPs for _____ in your orientation materials. You will be reviewing and refining these based on your own experience as you review the simulation vignettes. Take a moment to look over these now before we begin.
- Do you have any questions? (Facilitators respond to questions.)

PRACTICE SESSION (30 MIN)

- Participants read the vignette description, and then the facilitator issues the FRAGO to the unit leader. After the participants conduct abbreviated troop-leading procedures, the facilitator signals for the simulation vignette to begin.
- The participants role-play in character as they view tactical events on workstation displays. Each participant provides directions to the workstation operator and communicates tactically with other participants, as appropriate.
- The facilitator ensures that participants share ideas and asks probing questions from the *Facilitator's Execution Plan* (Appendix B-1).
- After the practice vignette ends, the facilitator provides guidance and answers the participants' questions.

TTP DEVELOPMENT/REVISION SESSION (1 HOUR PER VIGNETTE)

- Participants read the vignette description, and then a facilitator issues the FRAGO to the unit leader. After the participants conduct abbreviated troop-leading procedures, the facilitator signals for the simulation exercise to begin.
- The participants role-play in character as they view tactical events on workstation displays. Each participant provides directions to the workstation operator and communicates tactically with other participants, as appropriate.
- The facilitator ensures that participants share ideas and asks probing questions. The facilitator records notes. After the vignette ends, the facilitator declares ENDEX.
- Participants develop OR review/refine TTPs.
- Participants then repeat steps a through d to complete the remaining vignettes.

WRAP UP

- Facilitator collects all materials from participants
- Facilitator answers participants' final questions and explains the payoff
- Facilitator says, *"This completes our session. Thank you for your help."*
- Facilitator releases participants
- Facilitator label and file all paperwork in appropriate folders
- Facilitator and workstation operators prepare for next session when one follows on the same day.

EXECUTION OF A LIVE TRAINING (REF: APPROPRIATE MTP/ARTEP FOR THE TYPE OF UNIT, TC 25-10, A LEADERS GUIDE TO LANE TRAINING, FM 7-0, TRAINING THE FORCE)

- General Information - An example schedule for live training may be:
 - Assemble required personnel and materials
 - Conduct pre-execution in briefings and allow junior leaders preparation time
 - Conduct rehearsal at all levels (as time permits)
 - Conduct exercise
 - Conduct TTP-focused AAR
 - Conduct retraining (or prepare for next iteration)
 - Coordinate for required personnel: The following personnel are required for TTP development execution:
 - Exercise Director (If not the facilitator)
 - Facilitator
 - Unit leader

- Participants
- Observers/Controllers (Note takers)
- OPFOR and other exercise support personnel.

EQUIPMENT AND MATERIALS

- List of Equipment and Materials for a unit live exercise may include all MTOE equipment.
- Recording media (Electronic, paper, etc)
- Development Support Package
- Tactical communications equipment for exercise control (not unit communication equipment)
- Binders with orientation materials (Appendix A) and scenario materials
- Copies of sample set of TTPs
- Copies of TTPs developed from previous sessions

PREPARATION (Time - TBD): Before the participants arrive, the facilitator and workstation operators should:

- Complete the checklist as specified in Step 1 of the *Facilitator's Execution Plan* (Appendix B-1)
- Check all tactical communications for proper operation; resolve technical problems and verify readiness
- Conduct radio checks
- Consult plan to determine if participants are developing TTPs or reviewing/refining TTPs
- The leader directs his unit to conduct the orientation if they have not already done so during the previous two modes of training.

EXECUTION OF LIVE TRAINING

- The exercise will be executed IAW either unit SOP or doctrinal manual for that type of unit.
- Live training will be more resource intensive and will require planning and resources that will most likely be beyond the scope of a company. The battalion staff will most likely be involved from the beginning and may incorporate more companies into the exercise or use it as a chance to execute METL training.

STAGE 5: IMPLEMENTATION OF TTPS INTO THE UNIT'S TSOP

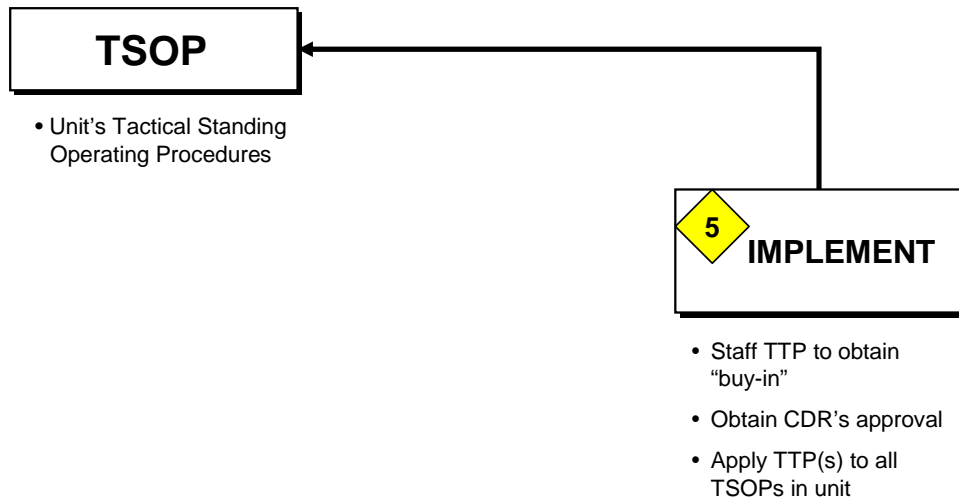


Figure 2-6: Implement TTPs

COLLECT FINAL OUTPUTS

- The exercises use worksheets (Appendix B-2) to be filled out during performance. The exercises also employ a series of questions organized around the supporting objectives for that exercise. Observation and note taking should be organized around the TTP-focused AAR question sheet, supplemented by the sample solutions where applicable.
- The TTP-focused AAR materials are the basis for organizing a review of the just-completed process. They are flexible in their implementation. Setting the tenor of the TTP-focused AAR is up to the commander who will generally be the training coordinator. The commander should establish his own criteria for performance and feedback based on the expectations, the experience, and the performance posture of the unit. The questions are provided as an aid to interpret the tasks and to focus the TTP-focused AAR, if the commander chooses to use them. Training Circular (TC) 25-20, A Leader's Guide to After-Action Reviews should serve as a basis for the commander preparing to conduct training.

DEVELOP TTP SUMMARY

Note: "Global" TTP: This is a TTP that may apply beyond the level or organization that it was developed for. For example, a TTP that was developed for a specific platoon may be applied to all platoons across a company.

Note: TTP specific to METT-TC conditions.

The leader sends the completed TTP summaries to the next higher level of command for approval/staff vetting. Approved TTP will be incorporated in the unit's TSOP.

The process is now complete but may start again (at the assess stage) anytime the leader feels another forcing event has occurred. If the chain of command believes the entire force could use the TTP, they can submit the TTP to the Center for Army Lessons Learned.

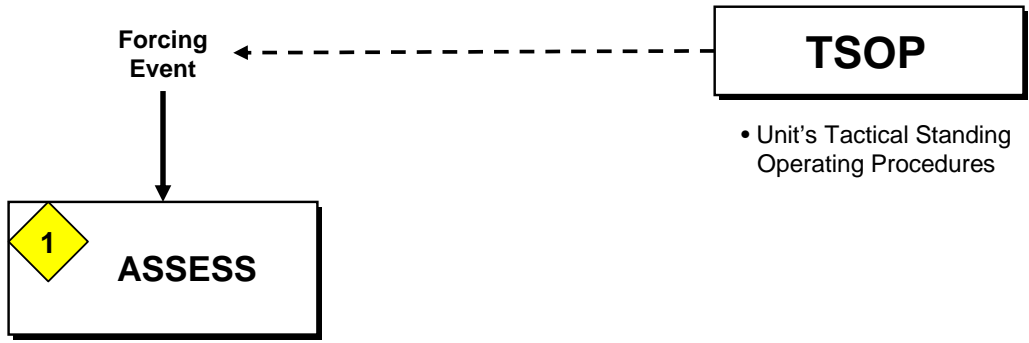


Figure 2-7: Forcing Event

APPENDIX B-A Orientation Materials

	Page
Appendix B-A-1. Participant Orientation.....	B-A-1-1
Appendix B-A-2. FRAGO 1 Practice Vignette	B-A-2-1
Appendix B-A-3. Defense 3D Graphic.....	B-A-3-1
Appendix B-A-4. Defense 2D Graphic.....	B-A-3-1
Appendix B-A-5. User Orientation.....	B-A-4-1
Appendix B-A-6. Sample TTP	B-A-5-1
Appendix B-A-7. Practice Graphical TTP Worksheet	B-A-7-1
Appendix B-A-8. Instructions for Completing TTP Graphical Sketch	B-A-8-1
Appendix B-A-9. TTP Development and Revision Timeline	B-A-9-1

Toolbox for the Development of Tactics, Techniques, and Procedures (TTP)

Example Participant Orientation

Appendix - A1

Contents

- **Purpose**
- **Five Stage TTP Development Process**
- **METT-TC Definitions and Variables**
- **TTP Component Definitions and Example**
- **FCS Overview**
- **Example Simulation (VBS2 Overview)**
- **Example Scenario Overview**
- **Example Vignettes-Overview**

Purpose

There is an increasing need to manage the knowledge derived from several years of continuous combat operations. Part of the knowledge management approach is to create Tactics, Techniques or Procedures (TTPs) and publish them for future use. These TTPs have in the past been written in no particular format and with no Army-wide policy. Compounding this lack of a policy/format is the need to develop TTPs for equipment that is still in prototype or in the manufacturer's facility. The TTP Development/Revision Process in the Development Support Package is "a way" for developing TTPs when one, two or all three components of TTPs are absent or need revising.

The TTP Development Process has five stages: Assessment, Planning, Preparation, Execution, and Implementation. The leader of the unit makes an assessment that a TTP needs to be developed or revised then plans/prepares for the development or revision. He will then conduct the exercises in table top, simulation and/or live. At the end of the process he gains approval by his higher HQ for implementation of the TTP into the units Tactical Standard Operating Procedures.

FIVE STAGE TTP DEVELOPMENT PROCESS

TSOP

• Unit's Tactical Standing Operating Procedures

Forcing Event



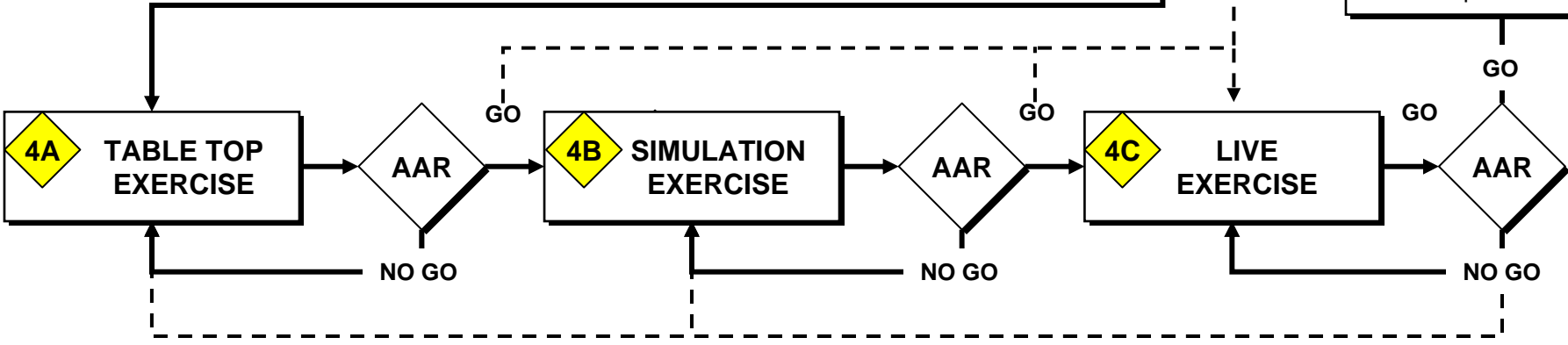
- Analyze forcing event
- Identify requirement to develop TTP(s)
- Review existing TTP(s)
- Document requirement for modified/new TTP(s)

- Review DSP
- Gather relevant information
- Identify available resources
- Determine exercise schedule
- Produce & publish WARNO

- Hold leader/facilitator meeting
- Produce & publish OPOD
- Produce & distribute orientation package
- Gather materials & perform setup
- Rehearse & adjust plan

- Staff TTP to obtain "buy-in"
- Obtain CDR's approval
- Apply TTP(s) to all TSOPs in unit

4D Summarize TTP
Note global vs. specific TTP



— Primary Path
- - Alternate Path

Stage 1: Assess



Analyze forcing event
Identify requirement to
develop TTP(s)
Review existing
TTP(s)
Document reqt for
modified/new TTP(s)

- A forcing event causes the unit leader make the assessment that a TTP either needs to be developed or revised. This is the first stage of the process.

Stage 2: Plan



Review DSP

Gather relevant information

Identify available resources

Determine exercise schedule

Produce & publish WARNO

- Once the assessment is made the unit leader starts the planning for the exercises. The end of this stage is the creation of a WARNO.

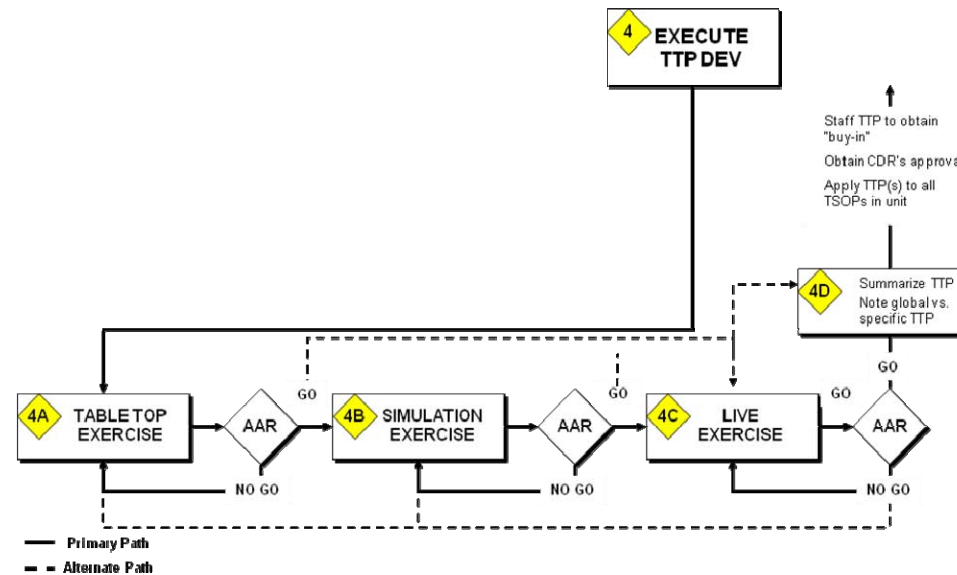
Stage 3: Prepare



Hold leader/facilitator meeting
Produce & publish OPORD
Produce & distribute orientation package
Gather materials & perform setup
Rehearse & adjust plan

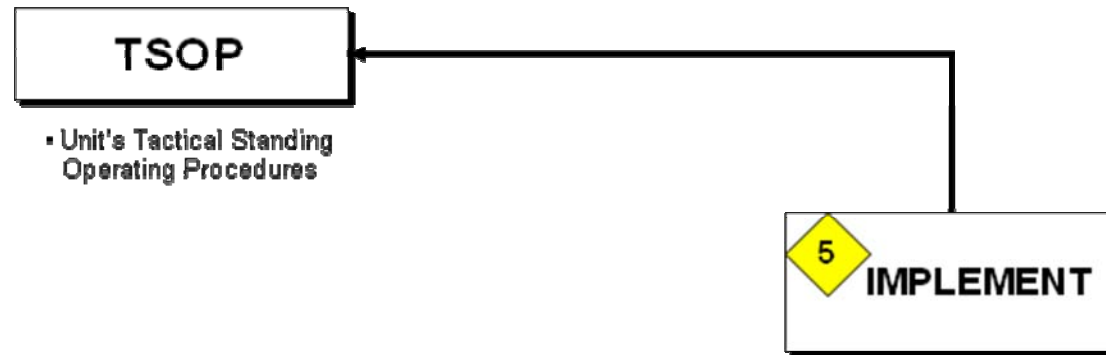
- During the prepare stage the facilitator and leader conduct coordination and identify the objectives, select vignettes and whether they can complete all the modes of the process. The step ends with the creation of an OPORD.

Stage 4: Execute



- During the execution stage the facilitator, leader, and participants will conduct exercises in three “modes”, table top, simulation and live. This stage ends with the production of viable TTPs.

Stage 5: Implement



- This final stage endstate is the production of developed/vetted/approved TTPs that can be inserted into a unit's TSOP

METTC-Definitions

- Mission
- Enemy
- Terrain and Weather
- Troops and Support Available
- Time Available
- Civil Considerations

METTC-Definitions

- Mission
 - Offensive Operations
 - Movement to Contact: A movement to contact develops the situation and establishes or regains contact.
 - Attack: An attack destroys or defeats enemy forces, seizes and secures terrain, or both.
 - Exploitation: An exploitation rapidly follows a successful attack and disorganizes the enemy in depth.
 - Pursuit: A pursuit is designed to catch or cut off a hostile force attempting to escape with the aim of destroying it.

METTC-Definitions

- Mission
 - Defensive Operations
 - Mobile Defense: In a mobile defense, the defender withholds a large portion of available forces for use as a striking force in a counterattack.
 - Area Defense: In an area defense, the defender concentrates on denying enemy forces access to designated terrain for a specific time, limiting their freedom of maneuver and channeling them into killing areas.
 - Retrograde: Retrograde involves organized movement away from the enemy.

METTC-Definitions

- Mission
 - Stability Operations
 - Civil Security: Civil security involves protecting the populace from external and internal threats.
 - Civil Control: Civil control regulates selected behavior and activities of individuals and groups.
 - Restore Essential Services: Army forces establish or restore the most basic services and protect them until a civil authority or the host nation can provide them.
 - Support to Governance: Stability operations establish conditions that enable actions by civilian and host-nation agencies to succeed.
 - Support to Economic and Infrastructure Development: Support to economic and infrastructure development helps a host nation develop capability and capacity in these areas.

METTC-Definitions

- Mission
 - Civil Support Operations
 - Provide Support in Response to Disaster or Terrorist Attack: In the event of disaster or attack, Army forces support civil authorities with essential services.
 - Support Civil Law Enforcement: When authorized and directed, Army forces provide support to local, state, and Federal law enforcement officers.
 - Provide other support as required: The Army is frequently called upon to provide other support to civil authorities apart from disaster response and law enforcement.

METTC-Definitions

- Enemy
 - Enemy
 - An enemy is a party identified as hostile against which the use of force is authorized. An enemy is also called a combatant and is treated as such under the law of war.
 - Adversary
 - An adversary is a party acknowledged as potentially hostile to a friendly party and against which the use of force may be envisaged (JP 3-0). Adversaries include members of the local populace who sympathize with the enemy.
 - Supporter
 - A supporter is a party who sympathizes with friendly forces and who may or may not provide material assistance to them.
 - Neutral
 - A neutral is a party identified as neither supporting nor opposing friendly or enemy forces.

METTC-Definitions

- Terrain and Weather
 - Military aspects of Terrain (OAKOC)
 - Observation and Fields of Fire: Observation is the condition of weather and terrain that permits a force to see the friendly, enemy, and neutral personnel and systems, and key aspects of the environment. A field of fire is the area that a weapon or group of weapons may cover effectively from a given position (JP 1-02).
 - Avenues of Approach: An avenue of approach is an air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path (JP 1-02).
 - Key and Decisive Terrain: Key terrain is any locality or area, the seizure or retention of which affords a marked advantage to either combatant (JP 1-02). Decisive terrain is key terrain whose seizure and retention is mandatory for successful mission accomplishment (FM 3-90).
 - Obstacles: An obstacle is any obstruction designed or employed to disrupt, fix, turn, or block the movement of an opposing force, and to impose additional losses in personnel, time, and equipment on the opposing force.
 - Cover and Concealment: Cover is protection from the effects of fires. Concealment is protection from observation and surveillance (JP 1-02).

METTC-Definitions

- Terrain and Weather
 - Military Aspects of Weather
 - Visibility: Distance for unrestricted sight
 - Wind: Miles per hour
 - Precipitation: Inches per hour
 - Cloud Cover: %
 - Temperature: Degrees
 - Humidity: Percent

METTC-Definitions

- Terrain and Weather
 - Military aspects of Climate and Weather
 - Temperature: Average temperature over a time period
 - Wind velocity: Miles per hour/kilometers per hour average
 - Precipitation: Historical rain, sleet, snow, hail amounts

METTC-Definitions

- Troops and Support Available
 - Friendly Troops
 - Number: Total number of combat troops
 - Type: Mechanized, truck-borne, or dismounted
 - Capabilities: Readiness, training strengths, maintenance
 - Condition: Mission capable or not mission capable

METTC-Definitions

- Time Available
 - 1/3 – Planning, 2/3 – Execution
 - Effective commanders and staffs know how much time and space their units need to plan, prepare, and execute operations. This includes the time required to assemble, deploy, move, and converge units to mass the effects of combat power effectively. They also consider time with respect to the enemy: time available is always related to the enemy's ability to plan, prepare, and execute operations, and react effectively to friendly actions. Time available varies with unit size and mission. It also depends on how much time is usable; for example, for some activities, hours of darkness are useable time, while for others they are not.

METTC-Definitions

- Civil Considerations
 - Areas/Structures
 - Buildings
 - Blue Prints
 - Street Patterns
 - Urban Patterns
 - Criminal Enclaves
 - Underlying Terrain
 - Construction Materials
 - Key Commercial Zones
 - Subterranean Passages
 - Political Precincts/Districts

METTC-Definitions

- Civil Considerations
 - Capabilities
 - Fuel
 - Fire/Rescue
 - Electrical Power
 - Water Supply
 - Transportation
 - Communications
 - Health Services

METTC-Definitions

- Civil Considerations
 - Organizations/People/Events
 - NGOs (Non-Government Organization)
 - Media
 - Culture
 - Loyalties
 - Authority(s)
 - Perceptions
 - Relationships
 - Labor Unions
 - Demographics
 - Groups & Sub-groups
 - Religious Holidays

TTP Component Definitions and Example

To help focus your efforts we have provided the definitions (FM 1-02) of each of the three components of TTP and an example of each.

- **Tactics**: The employment and ordered arrangement of forces in relation to each other. They change frequently as the enemy reacts and friendly forces explore new approaches.
- **Example**: *3rd PLT defends with dismounted squads on line.*

TTP Component Definitions and Example

- **Techniques**: Non-prescriptive ways or methods used to perform missions, functions, or tasks. They are the primary way to convey lessons learned that units gain in operations.
- *Example: Squad automatic weapons will cover the engagement area from a temporary fighting position.*

TTP Component Definitions and Example

- Procedures: Standard, detailed steps that prescribe how to perform specific tasks. They normally consists of a series of steps in a set order.
- *Example*: Select a temporary fighting position:
 1. Chose a position that uses available cover and concealment.
 2. Chose a position that allows observation and fire around the side of an object while concealing most of your head and body.
 3. Chose a position that allows you to stay low when observing and firing.
 4. Chose a position that prevented you from silhouetting yourself against your surroundings.
 5. Follow your leaders directions after the initial selection of a temporary battlefield position.

COMPOSITE TTP DEFINITION (NON-DOCTRINAL)

- **Tactics, Techniques and Procedures (TTP)** refer to the general and detailed methods for using equipment and personnel to accomplish a specific mission under a particular set of METT-TC conditions.
- **Example:** When conducting a daylight movement to contact A/1-67 AR will travel with two platoons forward and one platoon back as the CATK force. Each forward platoon will fly it's UAS at 300 feet and on the outer edge of the formation to cover the flanks. The CATK platoon will keep it's UAS in reserve if the unit loses one. The commanders UAS will be used to maintain situational awareness overall and fly behind the formation at 500 feet. This allows full aerial coverage of the formation and prevents penetration from the flanks. All other METT-TC variables remain constant.

EXAMPLE - FORCING EVENT

Activation of a Future Combat System (FCS) Unit. The unit is full of equipment that Soldiers will not have seen before nor are there developed TTPs on their use.



FCS OVERVIEW

The Future Combat Systems (FCS) is the Army's first full-spectrum modernization in nearly 40 years.

FCS (BCT) spin out systems includes:

- Two classes of unmanned aircraft systems (UAS)
 - **Class I (Micro Air Vehicle)**
 - Class IV (*FIRE SCOUT*)
- Unattended ground sensors (UGS)
- Two classes of unmanned ground vehicles:
 - Small Unmanned Ground Vehicle (SUGV), and
 - Multifunctional Utility/Logistics and Equipment Vehicle (MULE)
- Non-Line of Sight – Launch System (NLOS-LS)

Three distributions of equipment or “Spin Outs” will deliver this equipment to the Current Force. This process allows FCS capabilities to be put in soldier's hands sooner than the core program's current schedule.

FCS OVERVIEW

The Class I Unmanned Aircraft System (UAS) provides the dismounted soldier with Reconnaissance, Surveillance, and Target Acquisition (RSTA).

- Operational ceiling is 10,000 feet
- Operating flight time on 1 fuel load is 60 minutes or 8 km
- Cruise speed is 66 kph
- Estimated weight is less than 41 pounds
- Carried in a MOLLE backpack by one Soldier
- The UAS operates in complex urban/wooded terrains with a vertical take-off and landing capability
- Interoperable with selected ground and air platforms
- EO/IR/LD sensor capabilities
- Utilizes a Heavy Fuel Engine (HFE) as its propulsion system
- The Class I UAS uses autonomous flight and navigation but receives those inputs from Soldier on the ground
- ***The focus of this TTP development exercise.***

FCS OVERVIEW

The FCS (BCT) **Unattended Ground Sensors (UGS)** program is divided into two major subgroups of sensing systems:

- **Tactical-UGS (T-UGS)**
 - Intelligence, Surveillance and Reconnaissance (ISR) -UGS
 - Chemical, Biological, Radiological, and Nuclear (CBRN) - UGS
- **Urban-UGS (U-UGS)**, also known as Urban Military Operations in Urban Terrain (MOUT) Advanced Sensor System (UMASS). The UGS can be used to perform mission tasks such as:
 - Perimeter defense
 - Surveillance
 - Target acquisition
 - Situational awareness



FCS OVERVIEW



The **Small Unmanned Ground Vehicle (SUGV)** is capable of conducting military operations in urban terrain, tunnels, sewers, and caves. The SUGV is an aid in enabling the performance of manpower intensive or high-risk functions:

- Urban Intelligence, Surveillance, and Reconnaissance (ISR) missions
- Chemical/Toxic Industrial Chemicals (TIC)
- Toxic Industrial Materials (TIM) Reconnaissance
- Allows multiple payloads to be integrated in a plug-and-play fashion:
 - Weighs less than 30 pounds: Man portable
 - Capable of carrying up to six pounds of payload weight

FCS OVERVIEW

The **Non-Line-of-Sight-Launch System (NLOS-LS)** consists of: A highly deployable, platform-independent Container Launch Unit (CLU) with self-contained tactical fire control electronics and software for remote and unmanned operations.

Each Container Launch Unit (CLU) will consist of:

- A computer and communications system
- 15 missiles (Precision Attack Missiles - PAM). There are 6 in a NLOS-LS Platoon

Precision Attack Missiles (PAM):

- A modular, multi-mission, guided missile with two trajectories:
 - A direct-fire or fast-attack trajectory
 - A boost-glide trajectory

The PAM will support laser-designated, laser-anointed, and autonomous operation modes and will be capable of transmitting near-real-time information in the form of target imagery prior to impact.

FCS OVERVIEW

One T-UGS System consists of:

- 2 Gateway Nodes,
- 8 ISR Nodes (Intelligence, Surveillance, Reconnaissance),
- 2 EO/IR Sensor Nodes (Electro-Optic Infrared Sensor),
- 1 RN Node (Radiological Sensor), and
- 1 HCLM Nose (Hazard/Clear Lane Markers).

One U-UGS System consists of:

- 2 Gateways,
- 5 Imaging Nodes, and
- 10 Intrusion Detection Nodes.

One NLOS-LS System consists of:

1 container launch unit (CLU) with 1 CCS and 15 precision, attack missiles (PAMs), handheld control device in computer and communications system (CCS) (PDA).

Example Simulation (VBS2)

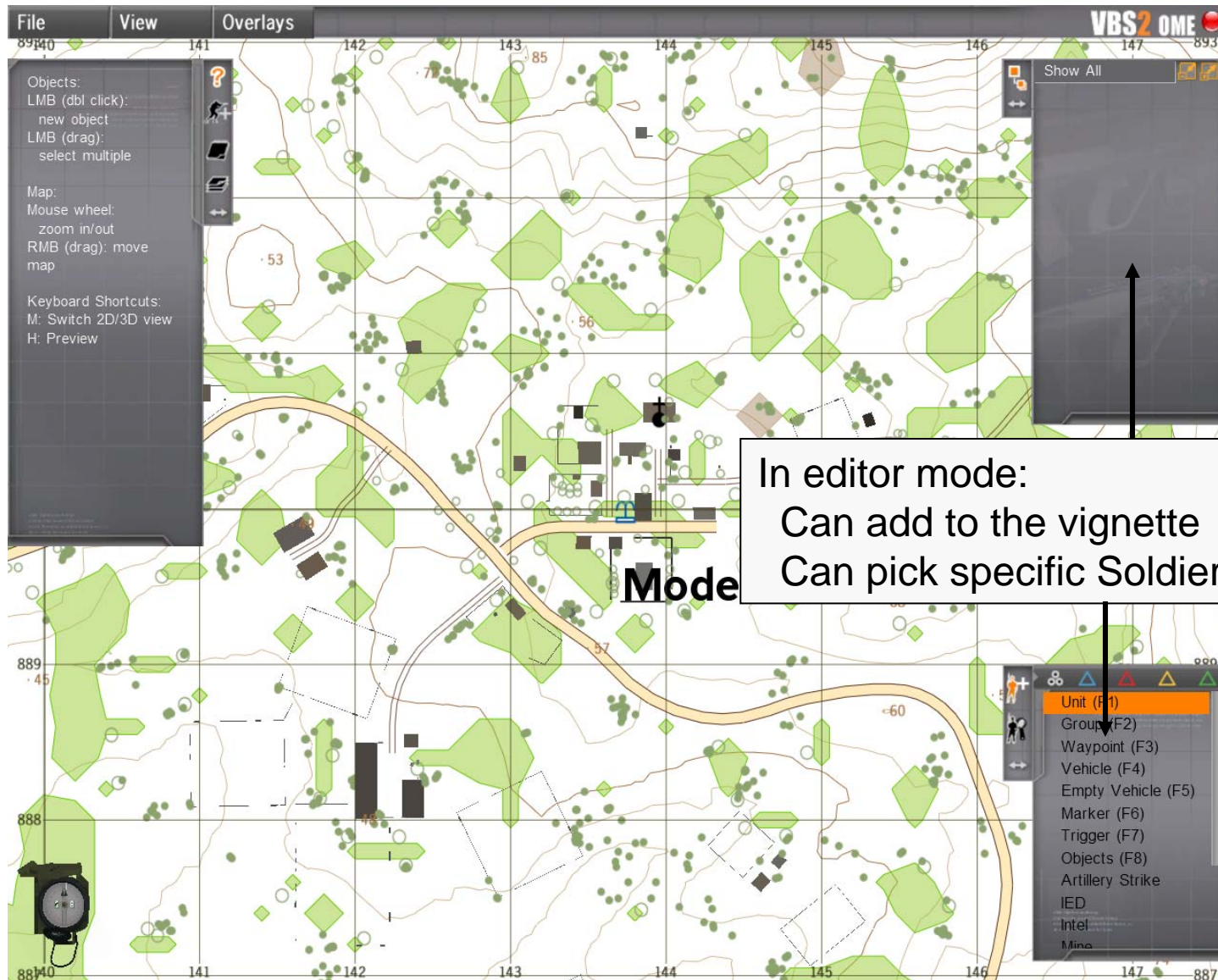
Overview

VBS2 SIMULATION OVERVIEW



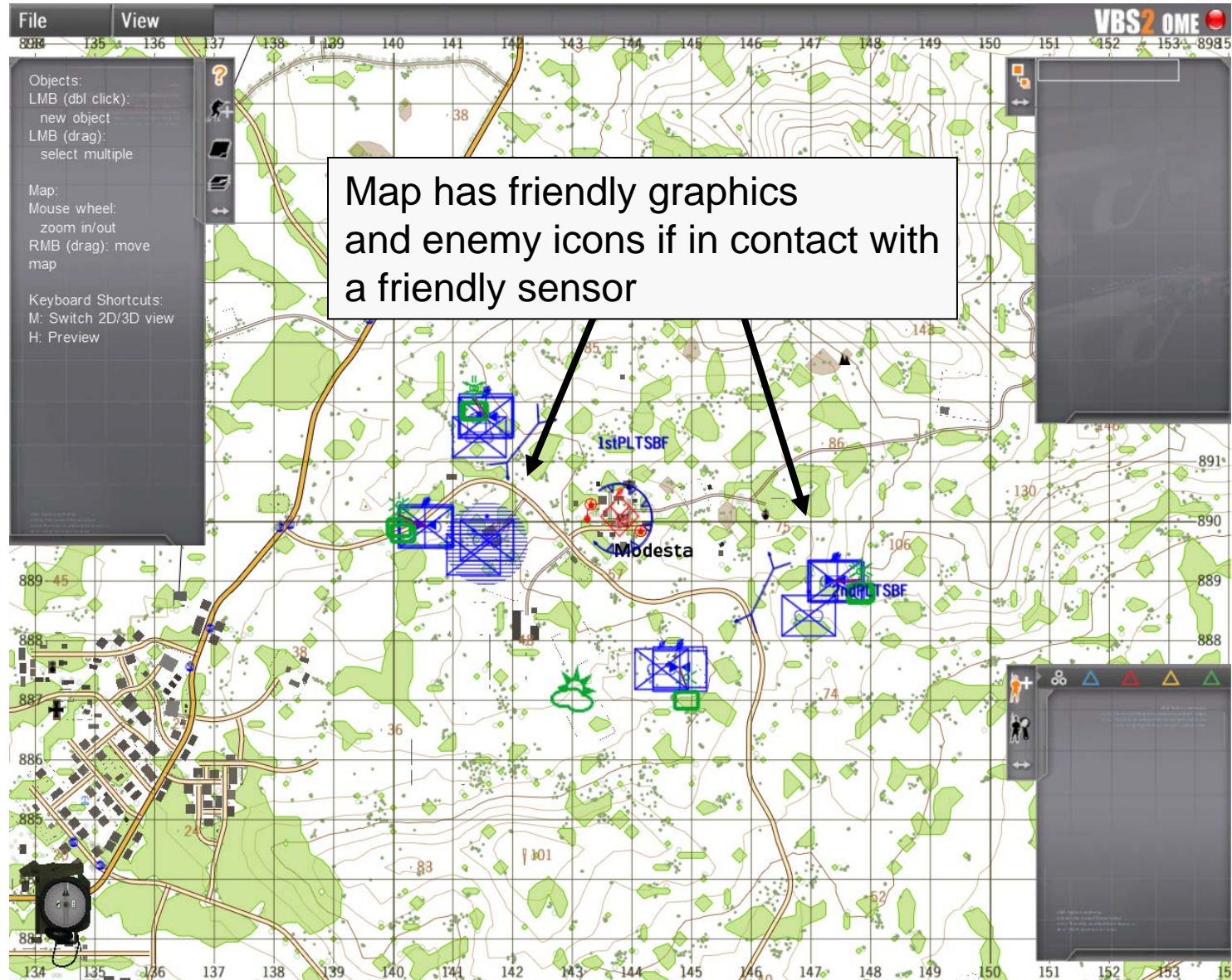
3-D 1st Person View

VBS2 SIMULATION OVERVIEW



In editor mode:
Can add to the vignette
Can pick specific Soldiers or equip

VBS2 SIMULATION OVERVIEW



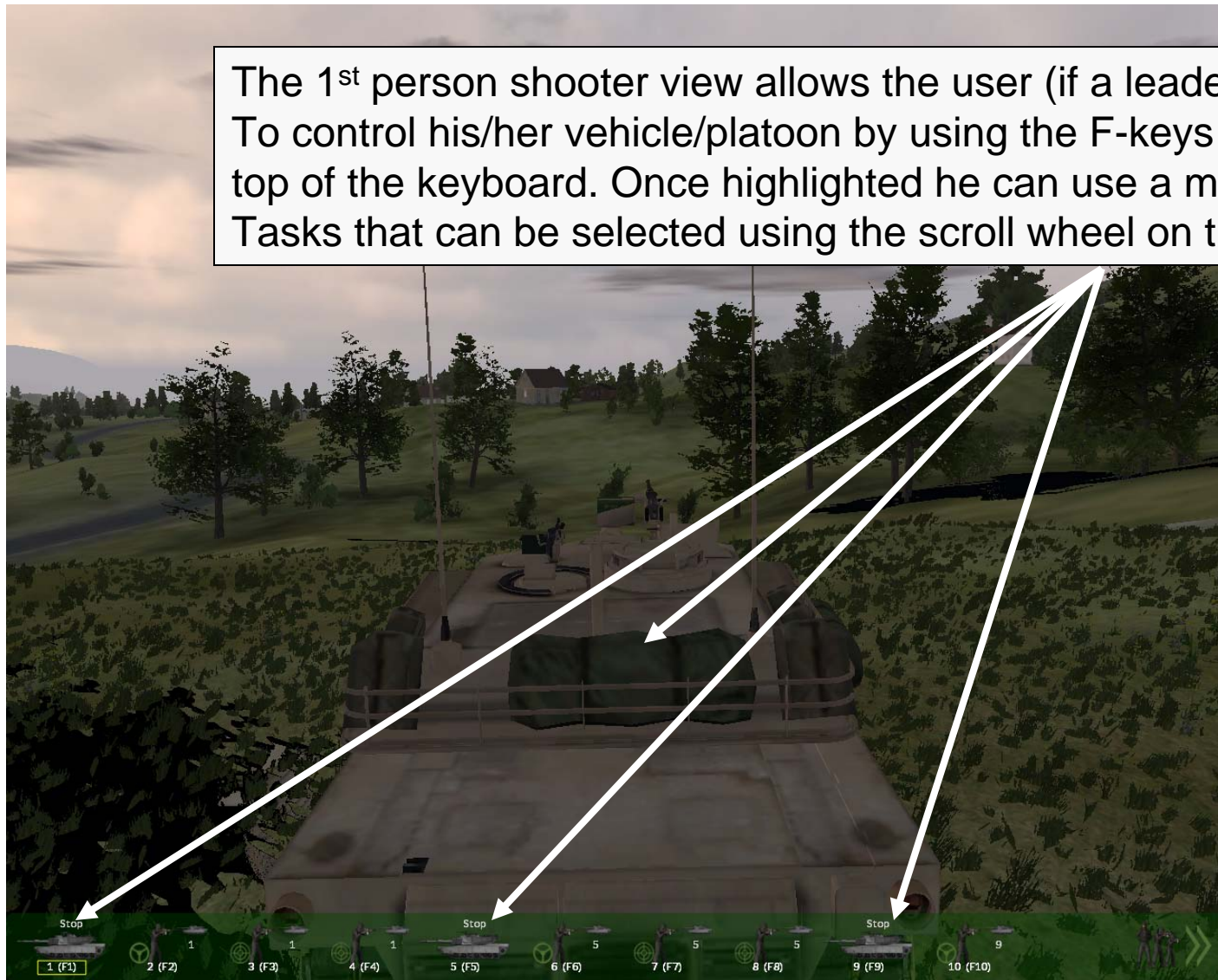
VBS2 SIMULATION OVERVIEW

The 1st person shooter view allows the user (if a leader) To control his/her squad/platoon by using the F-keys at the top of the keyboard. Once highlighted he can use a menu of Tasks that can be selected using the scroll wheel on the mouse.



VBS2 SIMULATION OVERVIEW

The 1st person shooter view allows the user (if a leader) To control his/her vehicle/platoon by using the F-keys at the top of the keyboard. Once highlighted he can use a menu of Tasks that can be selected using the scroll wheel on the mouse.



VBS2 SIMULATION OVERVIEW

Either 2D or 3D view allows the user to use the compass, DAGR, and watch to assist With onscreen time, grid coordinates, and direction.

The image shows a screenshot of the VBS2 simulation interface. The main window displays a topographic map with a grid overlay. The grid coordinates are visible along the bottom and right edges, ranging from 135 to 154 horizontally and 881 to 890 vertically. The map features various terrain elements, including green areas representing vegetation and brown lines representing contour lines. Several blue and red markers are placed on the map, with labels such as "1stPLTSBF" and "2ndPLTSBF".

On the left side, there is a "File" and "View" menu bar. Below it, a "Objects" panel lists actions: "LMB (dbl click): new object" and "LMB (drag): select multiple". A "Camera" panel lists actions: "RMB (drag): rotate camera", "W A S D: move camera", "Q Z: up / down", and "Shift: turbo". A "Keyboard Shortcuts" panel lists "M: Switch 2D/3D view".

On the right side, there is a "Hierarchy" panel showing a list of objects: "(P) M1A1 Command", "M1A1 Driver", "M1A1 Gunner", "M1A1 Assistant Gun", "M1A1 Assistant G", "M1A1 Assistant G", "M1A1 Assistant G", and "M".

Overlaid on the map are three items: a handheld DAGR (Digital Angle Reading Gauge) in the center, a digital watch on the left showing the number "14698884", and a physical compass on the right. Three black arrows point from the text box above to these three items.

Example Scenario Overview

OVERALL SCENARIO OVERVIEW

- The KINGDOM OF SOUTH SAHRANI is aware that it has emerged as the economic leader in the SAHRANI Region. This leadership position has been reinforced by its rapid military buildup and by growing assertiveness in its foreign policy and diplomacy. Through all means, the KINGDOM OF SOUTH SAHRANI seeks to establish itself politically as the dominant regional actor, capable of influencing regional neighbors (DEMOCRATIC REPUBLIC OF SAHRANI) and establishing de facto control over the continent and surrounding waters.
- The KINGDOM OF SOUTH SAHRANI encourages the replacement of the DEMOCRATIC REPUBLIC OF SAHRANI government by covertly sponsoring anti-government political groups and insurgents.
- The KINGDOM OF SOUTH SAHRANI views its emerging military capabilities to be symbolic of its emergence as a regional leader and global power. Military capability also underpins regime security, enhances the domestic stature of key political leaders like Regent Telemakhos, deters the West, and gives the KINGDOM OF SOUTH SAHRANI a growing potential to influence and coerce its neighbors.

OVERALL SCENARIO OVERVIEW

OPORD 05-10 (OPERATION ROAD WARRIOR)

References:

- Map: Screen Shots of VBS2 battlefield with 2D view (overhead)

Task Organization:

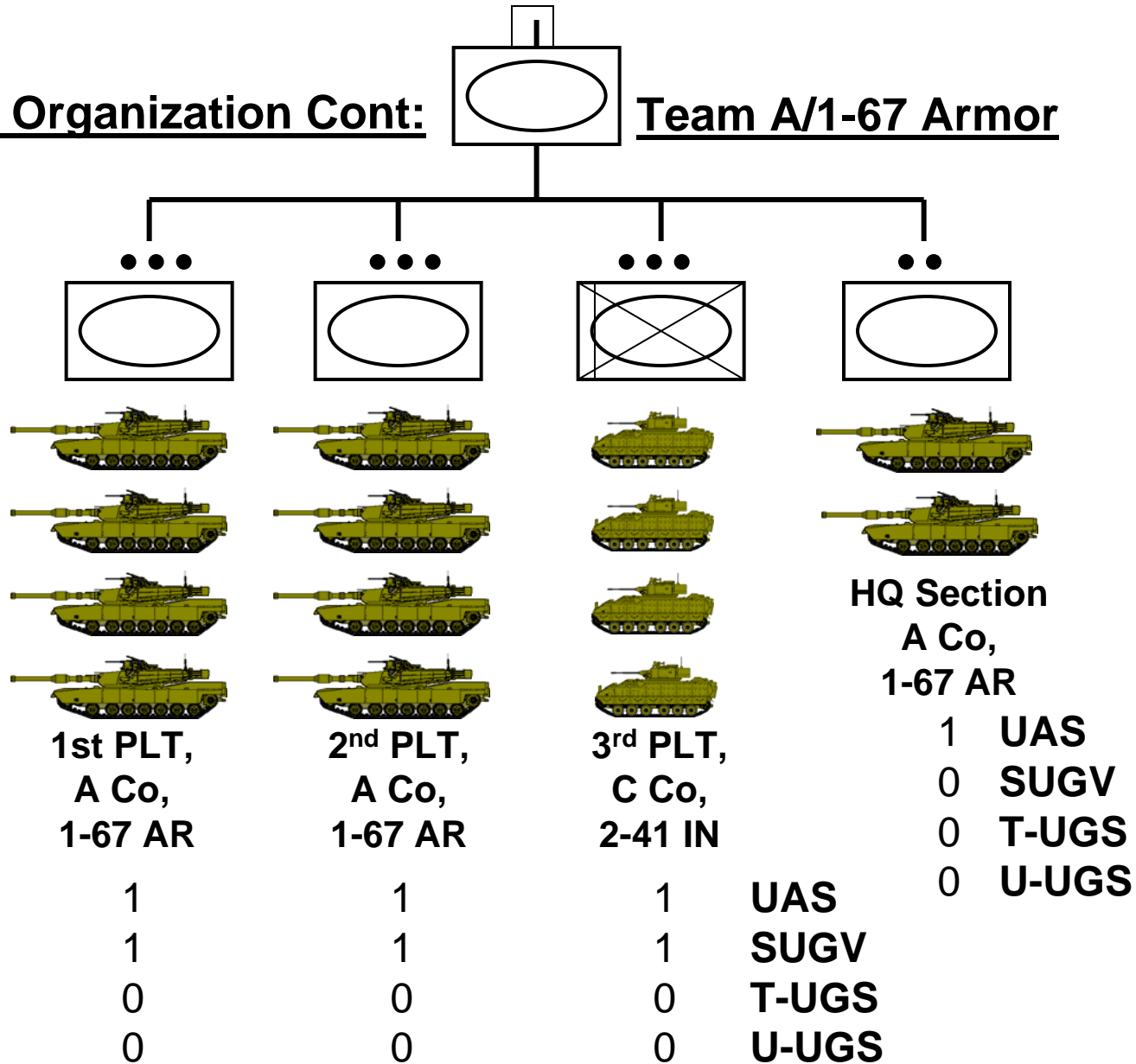
1-67 AR

- A/1-67 AR (M1A2) [Player]
- *B/1-67 AR (M1A2) [Artificial Intelligence]*
- *C/2-41 IN (M2A3) [Artificial Intelligence]*
- *D/2-41 IN (M2A3) [Artificial Intelligence]*

OVERALL SCENARIO OVERVIEW

Task Organization Cont:

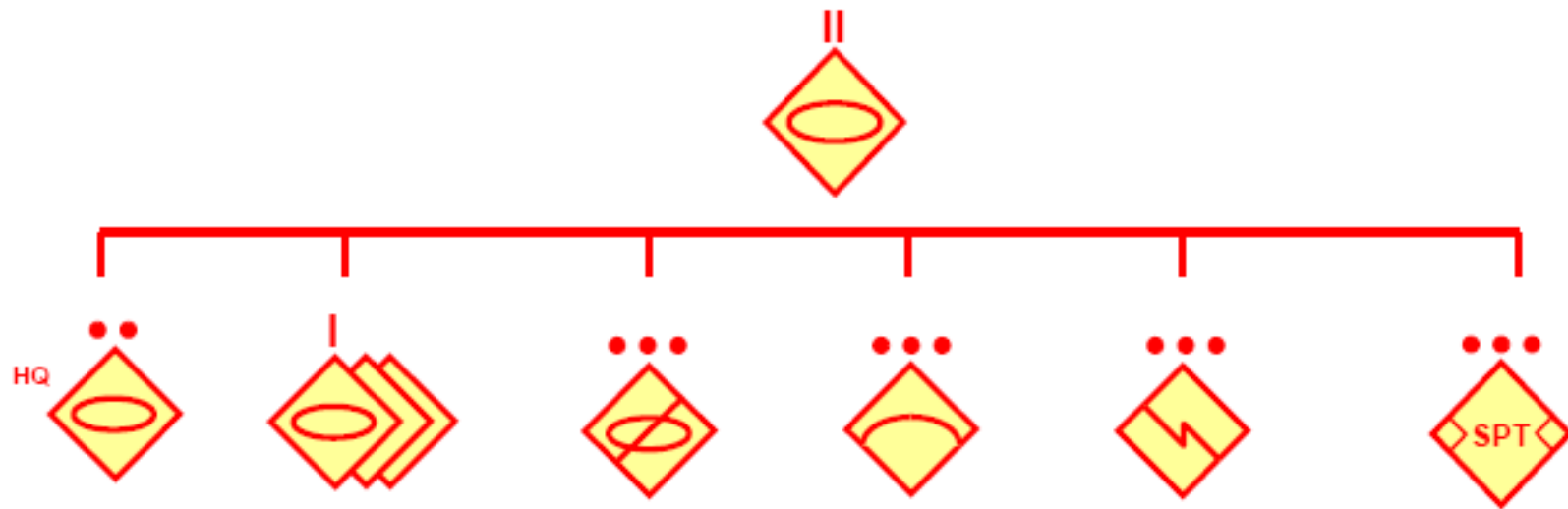
Team A/1-67 Armor



OVERALL SCENARIO OVERVIEW

NATIONAL FORCES

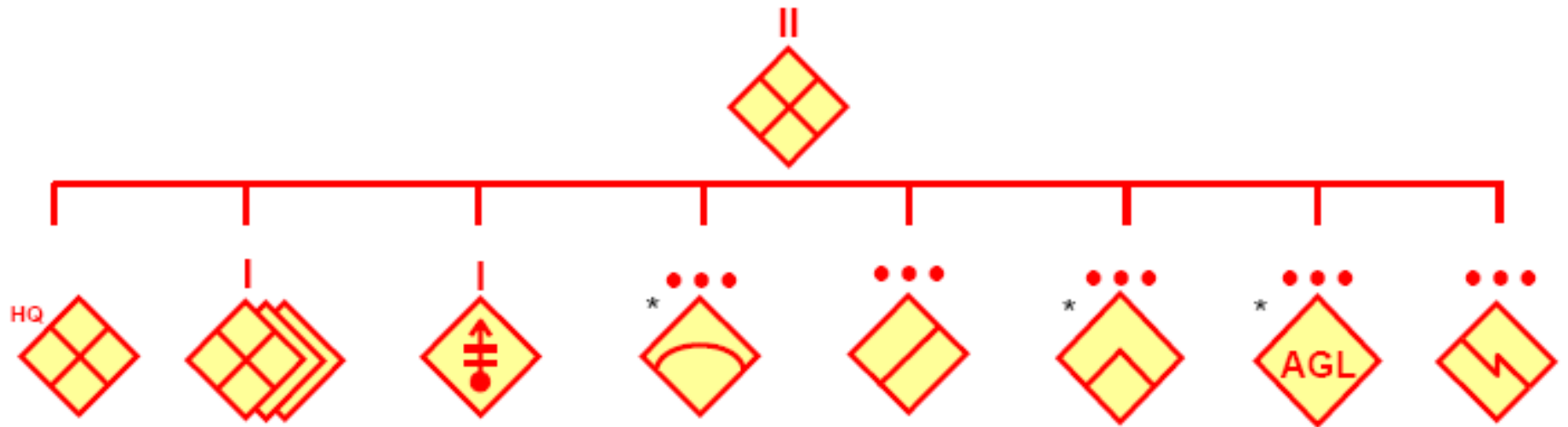
Tank Battalion



OVERALL SCENARIO OVERVIEW

NATIONAL FORCES

Infantry Battalion



OVERALL SCENARIO OVERVIEW

SITUATION

Enemy: There are no obstacles in zone at this time. Chemical agents are not expected. Radio jamming is possible but limited. Forces will be PARAI SO National Forces with some limited insurgents in zone. Infantry are mostly dismounted but there are some reported BTRs/BMPs in zone (limited armor, most located in southern region of country), extensive anti-tank missile threat.

Friendly: No friendly air is available (We are not the priority). The battalion is already in theater.

MISSION: 1-67 AR conducts offensive operations in zone NLT 180530MAR2010 to clear PARAI SO National Forces / Insurgents.

OVERALL SCENARIO OVERVIEW

EXECUTION

Intent: My intent is to move through sector protecting our formations as we gain and maintain contact with the main PARAIISO forces We will clear and reestablish the border; O/O stop any further penetrations of the border.

Key Tasks:

- Identification and destruction of insurgent strongholds.
- Reestablish the International Border.
- Establishment of a FOB in CORAZOL.
- Destruction of any enemy penetration of the border.

OVERALL SCENARIO OVERVIEW

RULES OF ENGAGEMENT

1. Do not engage anyone who has surrendered or is out of battle due to sickness or wounds.
2. Do not target or strike any of the following except in self defense to protect yourself, your unit, friendly forces and designated persons or property under your control:
 - Civilians, and
 - Hospitals, mosques, churches, shrines, schools, museums, national monuments and any other historical and cultural sites.
3. Do not fire into civilian populated areas or buildings unless the enemy is using them for military purposes or if necessary for your self defense. Minimize collateral damage.

OVERALL SCENARIO OVERVIEW

RULES OF ENGAGEMENT Cont:

3. Do not target enemy infrastructure, lines of communication, commercial storage facilities, or pipelines, unless necessary for self defense, or ordered by your commander. If you must fire on these objects to engage a hostile force, attempt to disable and disrupt, but avoid destruction of these objects, if possible.
4. The use of force, including deadly force is authorized to protect the following:
 - Yourself, your unit and friendly forces,
 - Enemy prisoners of war,
 - Civilians from crimes that are likely to cause death or serious bodily harm, such as murder or rape, and
 - Designated civilians and/or property, for example personnel of the Red Cross/Crescent, UN, Coalition, selected local national partisans and US/UN supported organizations.

OVERALL SCENARIO OVERVIEW

RULES OF ENGAGEMENT Cont:

6. Treat all civilians and their property with respect and dignity. Do not seize civilian property, including vehicles, unless you have the permission of a company level commander, and you give a receipt to the property's owner.
7. Detain civilians if they interfere with mission accomplishment or if required for self defense.
8. Looting and the taking of war trophies are prohibited.

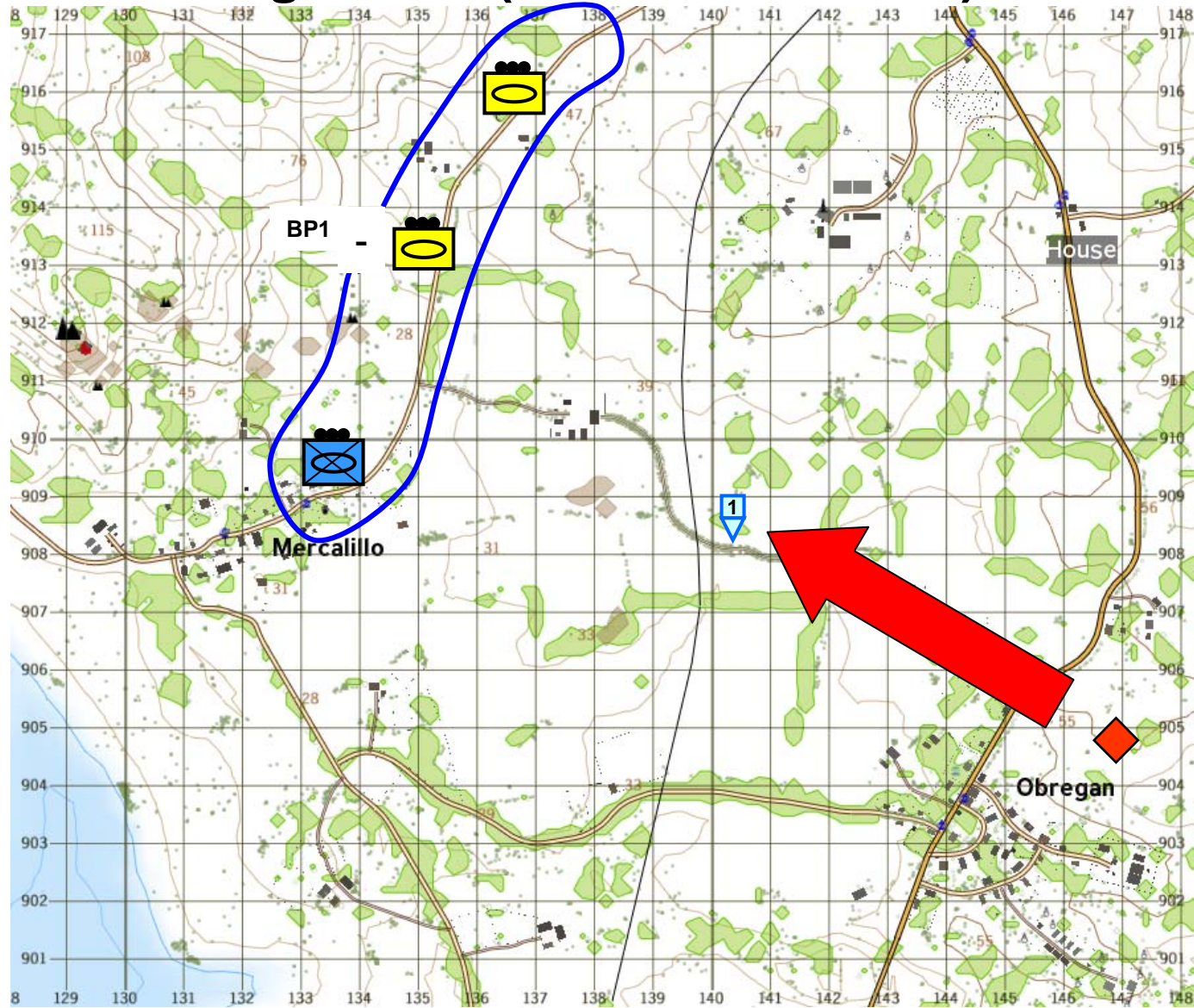
Example Vignettes- Overview

VIGNETTE OVERVIEW

Vignette	Mission	Unit	Terrain	Enemy	Enemy Knowledge
#1	DEFENSE Practice During Orientation	Team Alpha	HILLS	PARAISO MECH UNITS	SUPRISE
#2	CORDON AND SEARCH	Team Alpha	URBAN	PARAISO SECTION	SUPRISE
#3	RAID	Team Alpha	URBAN	INSURGENT SQUAD	NO SUPRISE
#4	SCREEN	Team Alpha	HILLS	PARAISO MECH UNITS	SUPRISE
#5	MOVEMENT TO CONTACT	Team Alpha	OPEN DESERT	PARAISO PLATOONS	NO SUPRISE

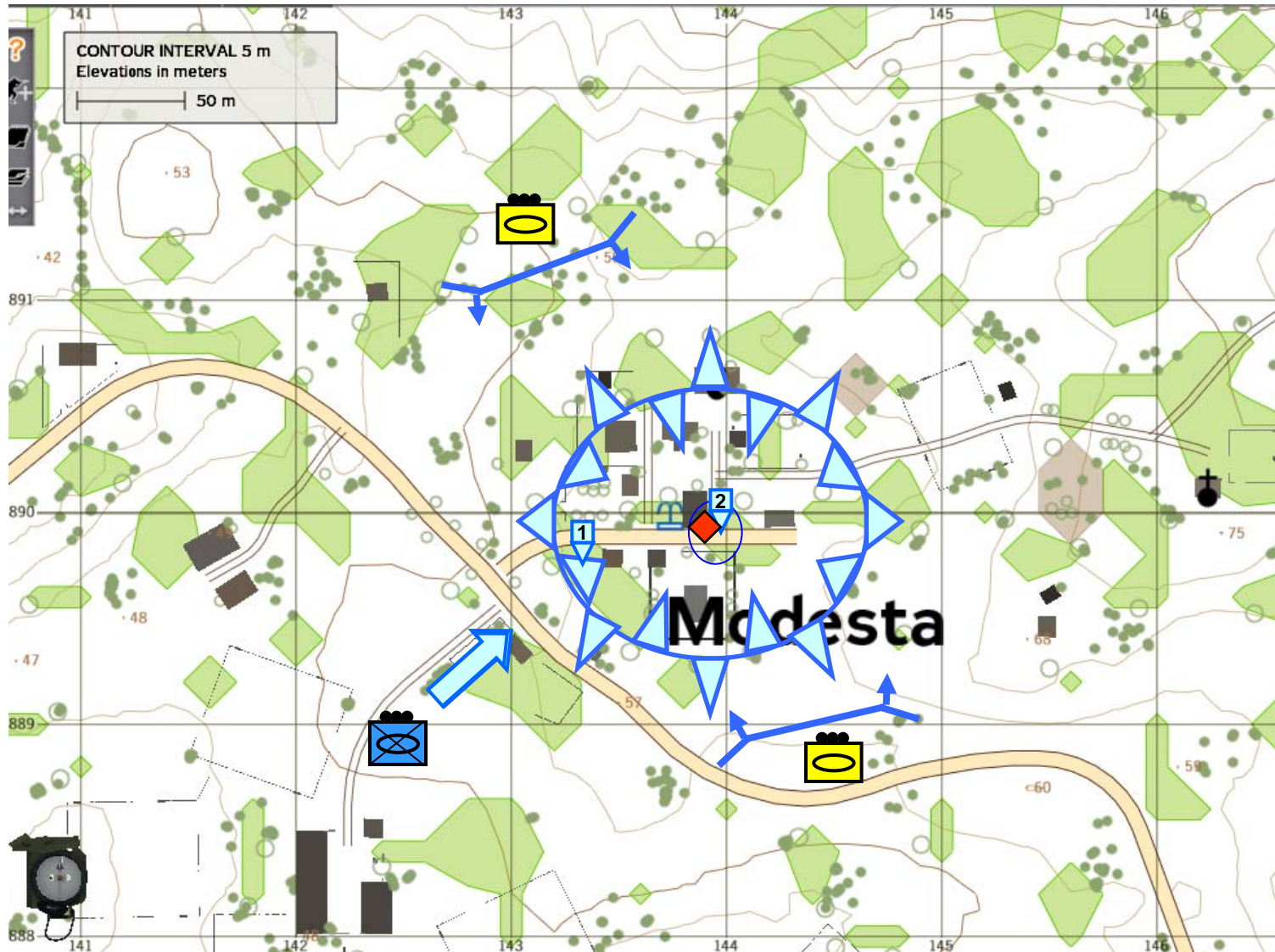
VIGNETTE OVERVIEW

Vignette 1 (Practice-Defense)



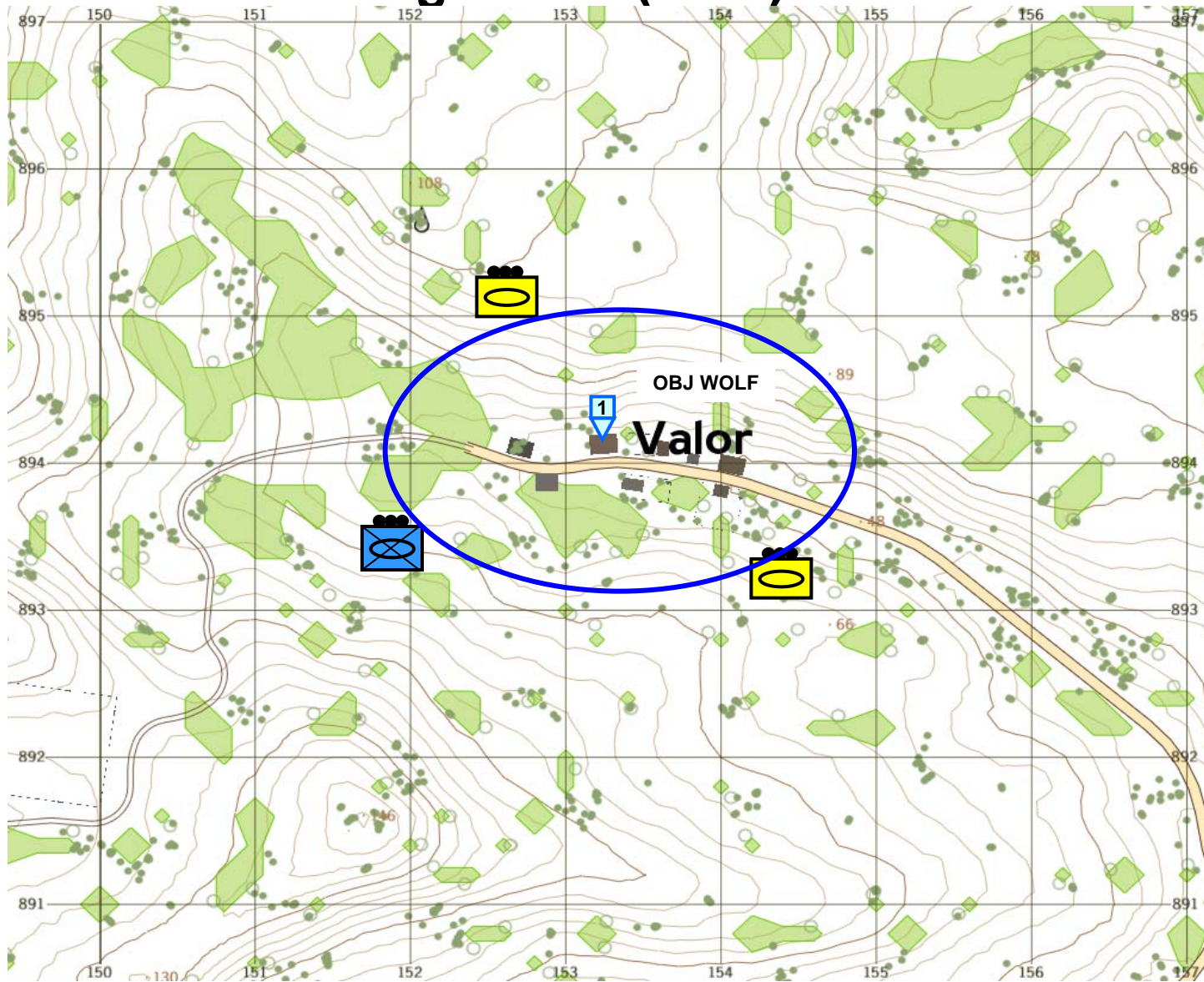
VIGNETTE OVERVIEW

Vignette 2 (Cordon & Search)



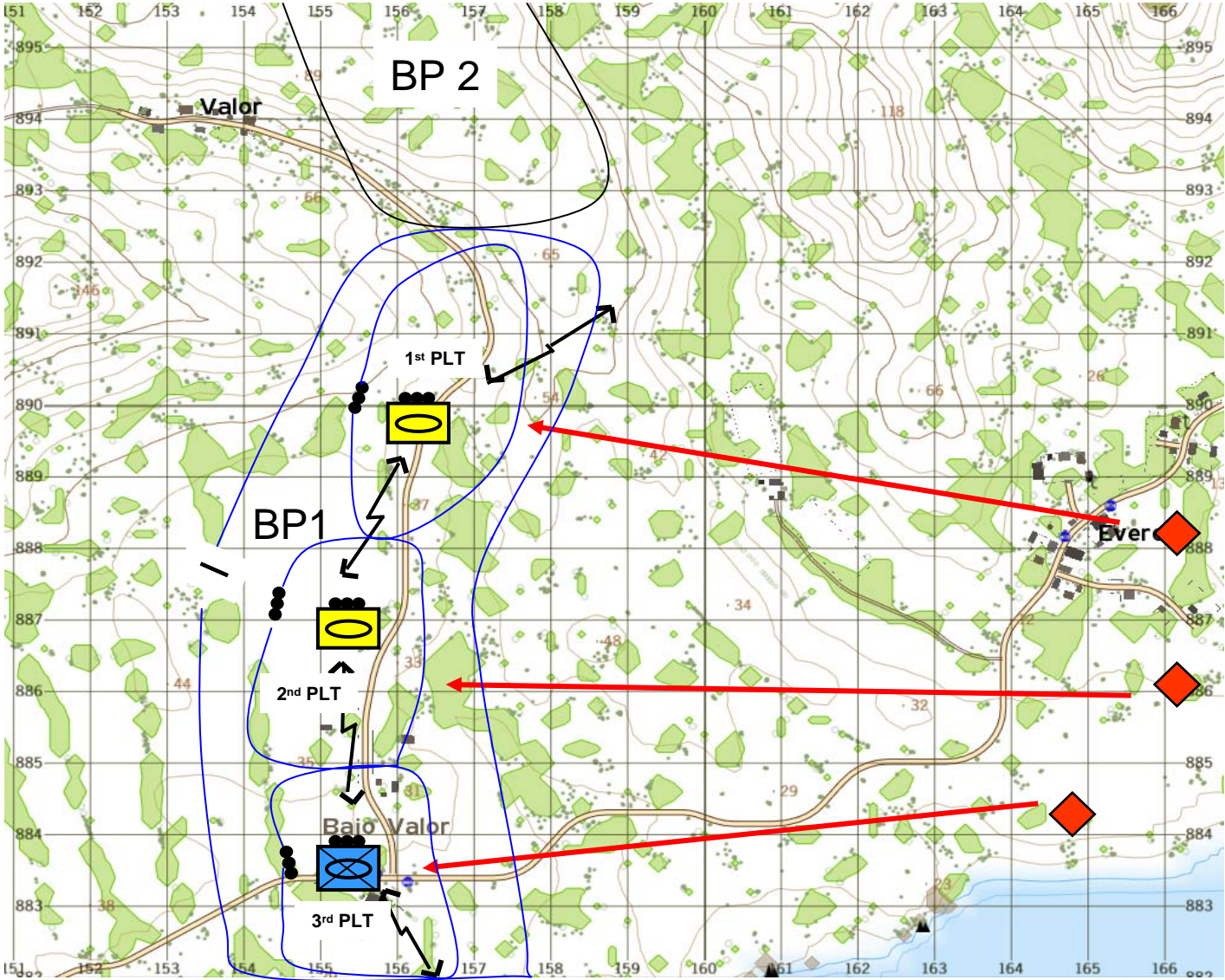
VIGNETTE OVERVIEW

Vignette 3 (Raid)



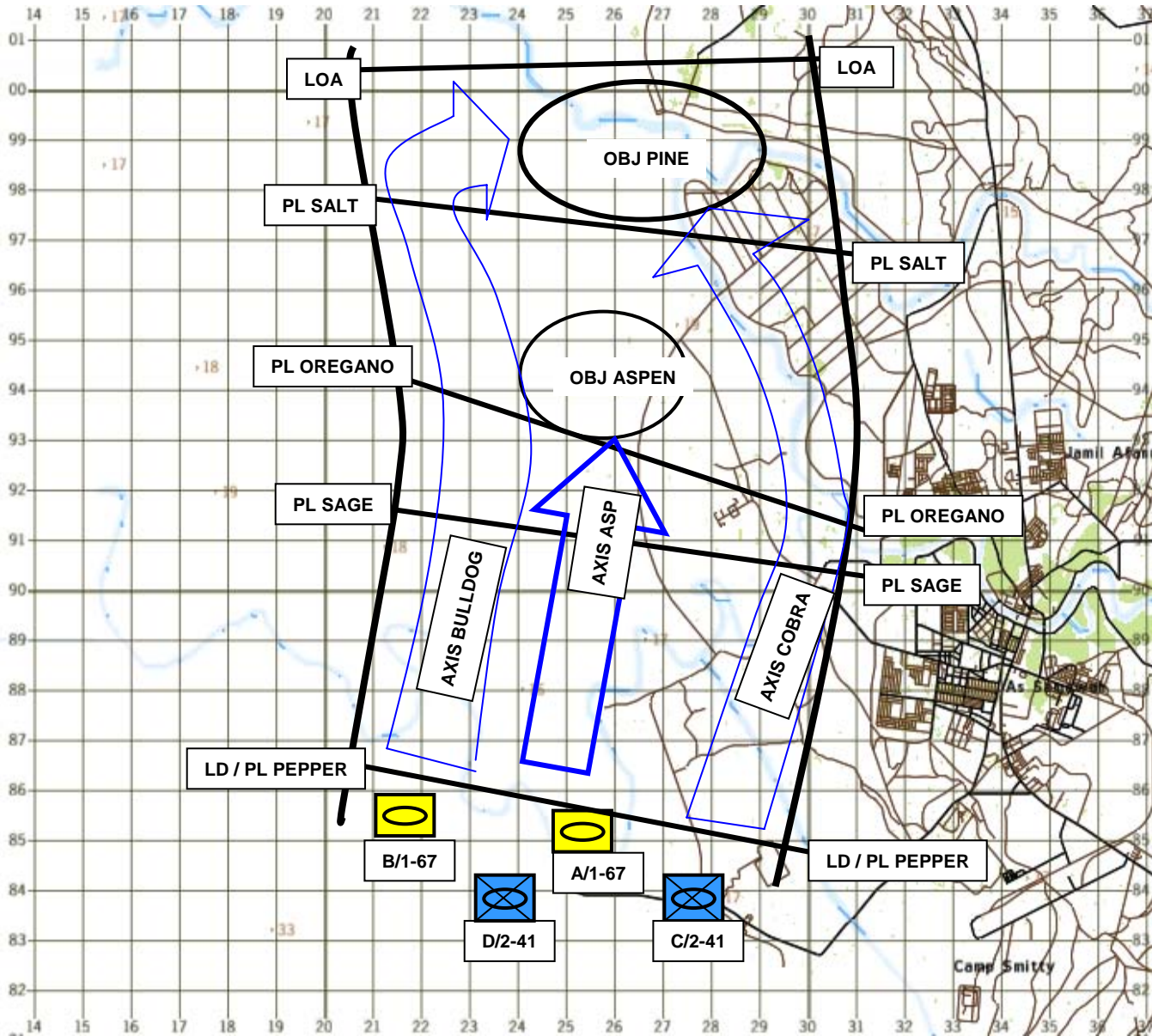
VIGNETTE OVERVIEW

Vignette 4 (Screen)



VIGNETTE OVERVIEW

Vignette 5 (MTC)



FRAGO 1 Practice Vignette – Appendix A2

1-67 AR
MERCALILLO
(134909)
19 March 2010

FRAGO 01 (Vignette 1)

References:

Map: Sahrani 1:40,000

Task organization: TF 1-67 Armor

<u>TM A/1-67 AR</u>	<u>TM B/1-67 AR</u>	<u>TM C/2-41 IN</u>
1 st PLT (TK)	1 st PLT (TK)	1 st PLT (BFV)
2 nd PLT (TK)	2 nd PLT (TK)	2 nd PLT (BFV)
3 rd PLT (BFV-C Co)	3 rd PLT (BFV-D Co)	3 rd PLT (TK)
<u>TM D/2-41IN</u>		
1 st PLT (BFV)		
2 nd PLT (BFV)		
3 rd PLT (TK-B Co)		

1. SITUATION.

Enemy Forces. Reconnaissance indicates light insurgent activity in the village. Expect crowds of angry civilians and ambushes tied to choke points (urban).

Friendly Forces. See task organization.

2. **MISSION.** TF 1-67 defends from BP1 200600MAR2010 to establish our sector.

3. EXECUTION.

Commander's Intent: I want you to maintain operational and situational awareness during the operation. My intent is for the battalion to maintain the security of the sector while preparing for offensive operations.

Concept of the operation: Each company will maximize its ability to see the enemy before the enemy reaches its effective firing range.

Scheme of Maneuver. See overlay.

Tasks to maneuver units.

Team Alpha, 1-67.

3.A.1.A. TM A, 1-67 Armor defends from BP1 NLT 200600MAR2010 to maintain security in sector. Report activity at CP1 (14039083).

Team Bravo, 1-67 Armor.

3.A.1.B. TM B, 1-67 Armor defends from BP2 NLT 200600MAR2010 to maintain security in sector. Report activity at CP2 (14409220).

Team Charlie, 2-41 IN

3.A.1.C. TM C, 2-41 IN defends from BP3 NLT 200600MAR2010 to maintain security in sector. Report activity at CP3 (11509140)

Team Delta, 2-41 IN

3.A.1.D. TM D, remains the counterattack force for the battalion in an AA west of TM A.

Coordinating Instructions. See base order.

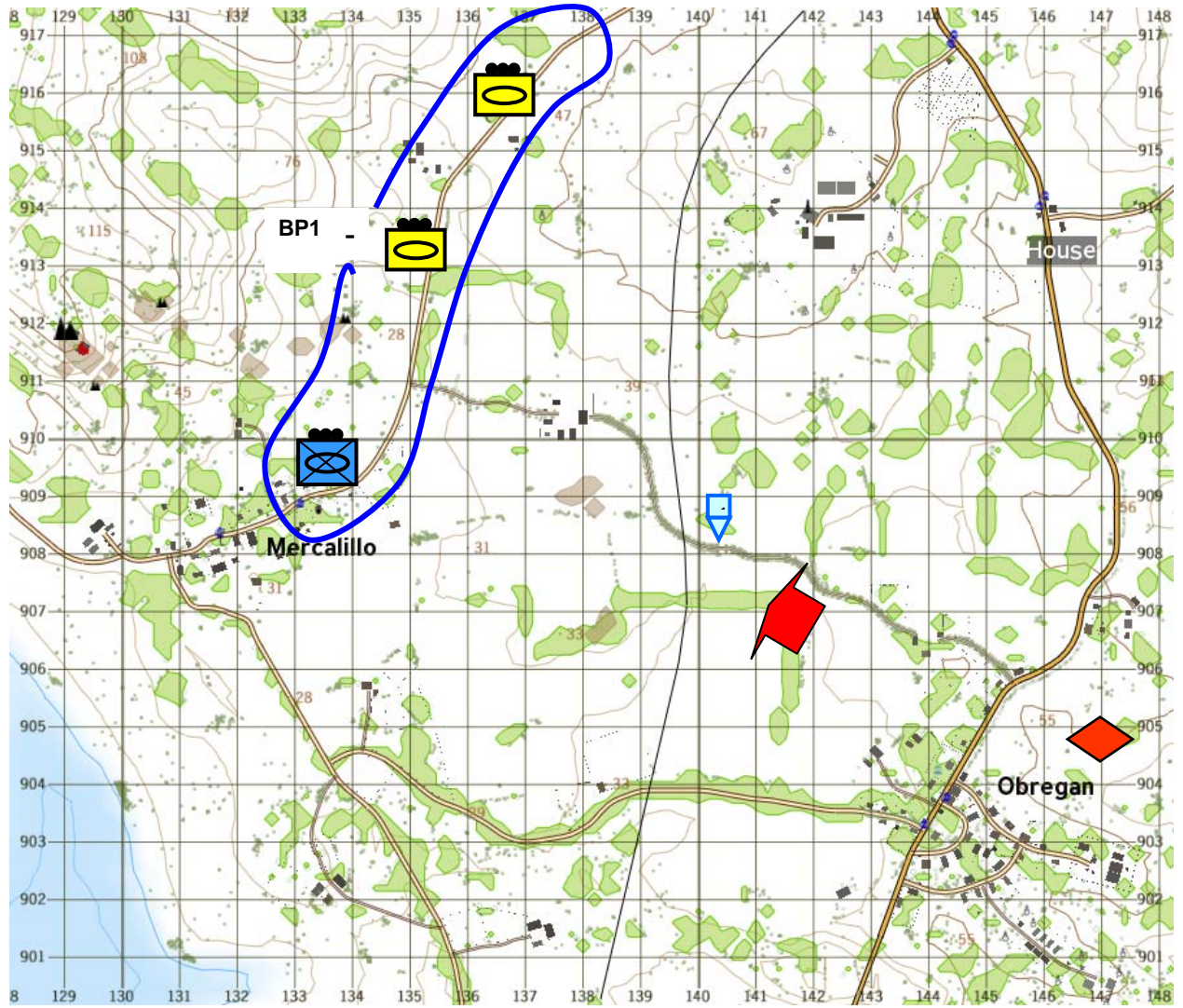
4. **SERVICE & SUPPORT.** See base order.

5. **COMMAND & SIGNAL.** See base order.

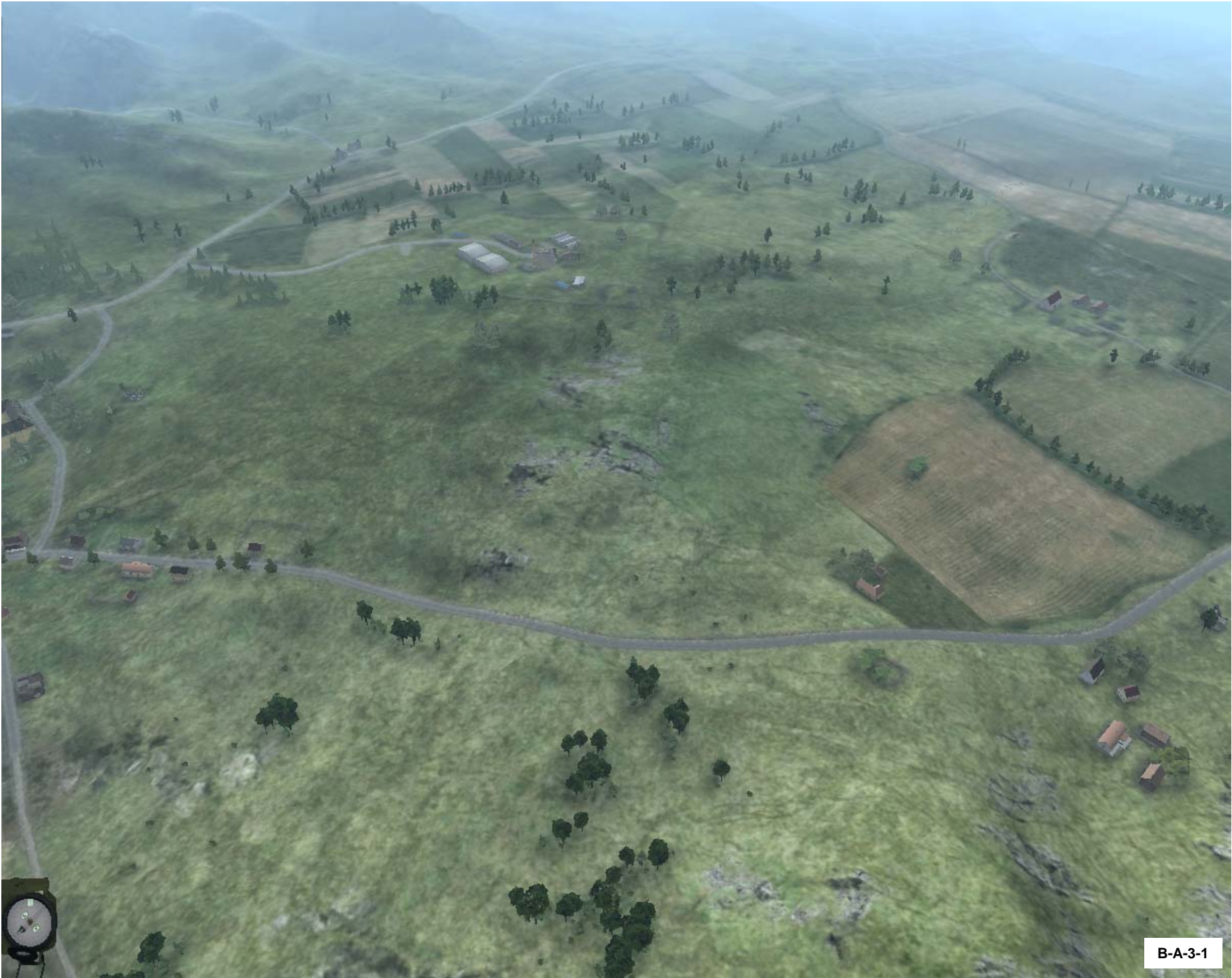
ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:



Defense 3D Graphics



APP 1 to ANNEX C to FRAGO 1 (Satellite View of AO) View 1



APP1 to ANNEX C to FRAGO 1 (Satellite View of AO) View 2



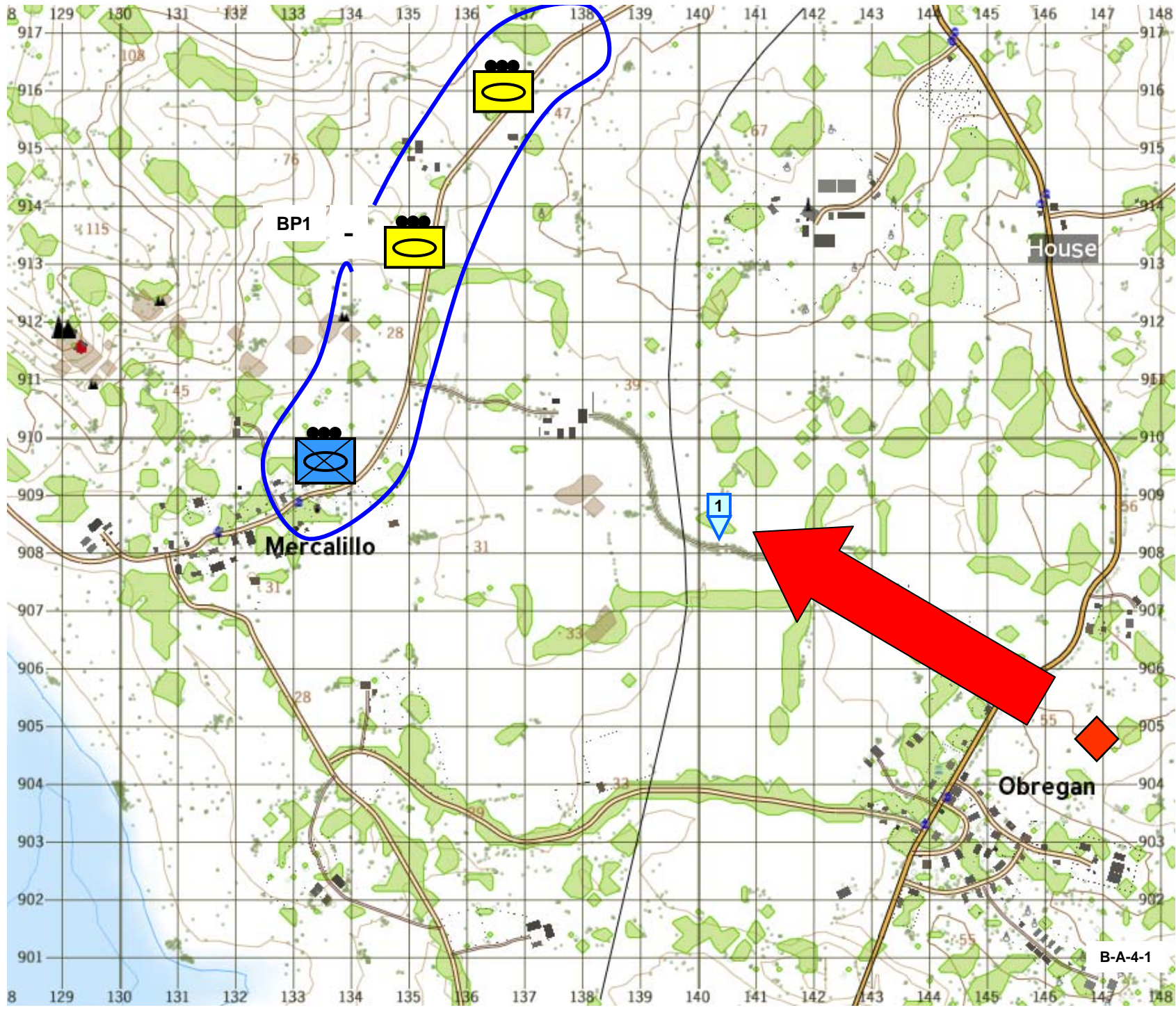
APP 1 to ANNEX C to FRAGO 1 (Satellite View of AO) View 3

APP 1 to ANNEX C to FRAGO 1 (Satellite View of AO) View 4



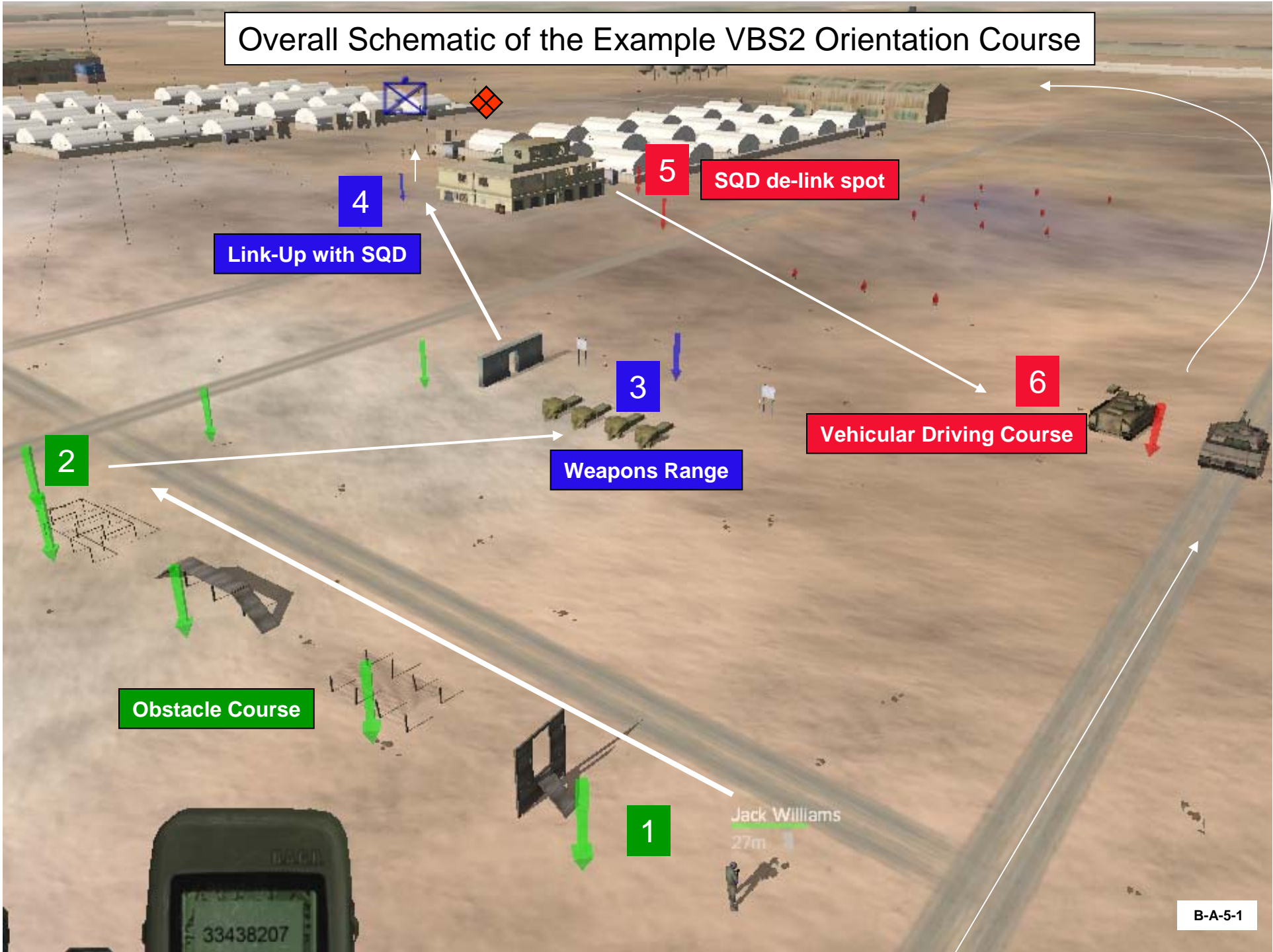
Defense 2D Graphics

APP 1 to ANNEX C to FRAGO 1 (Practice-Defense)



VBS2 User Orientation

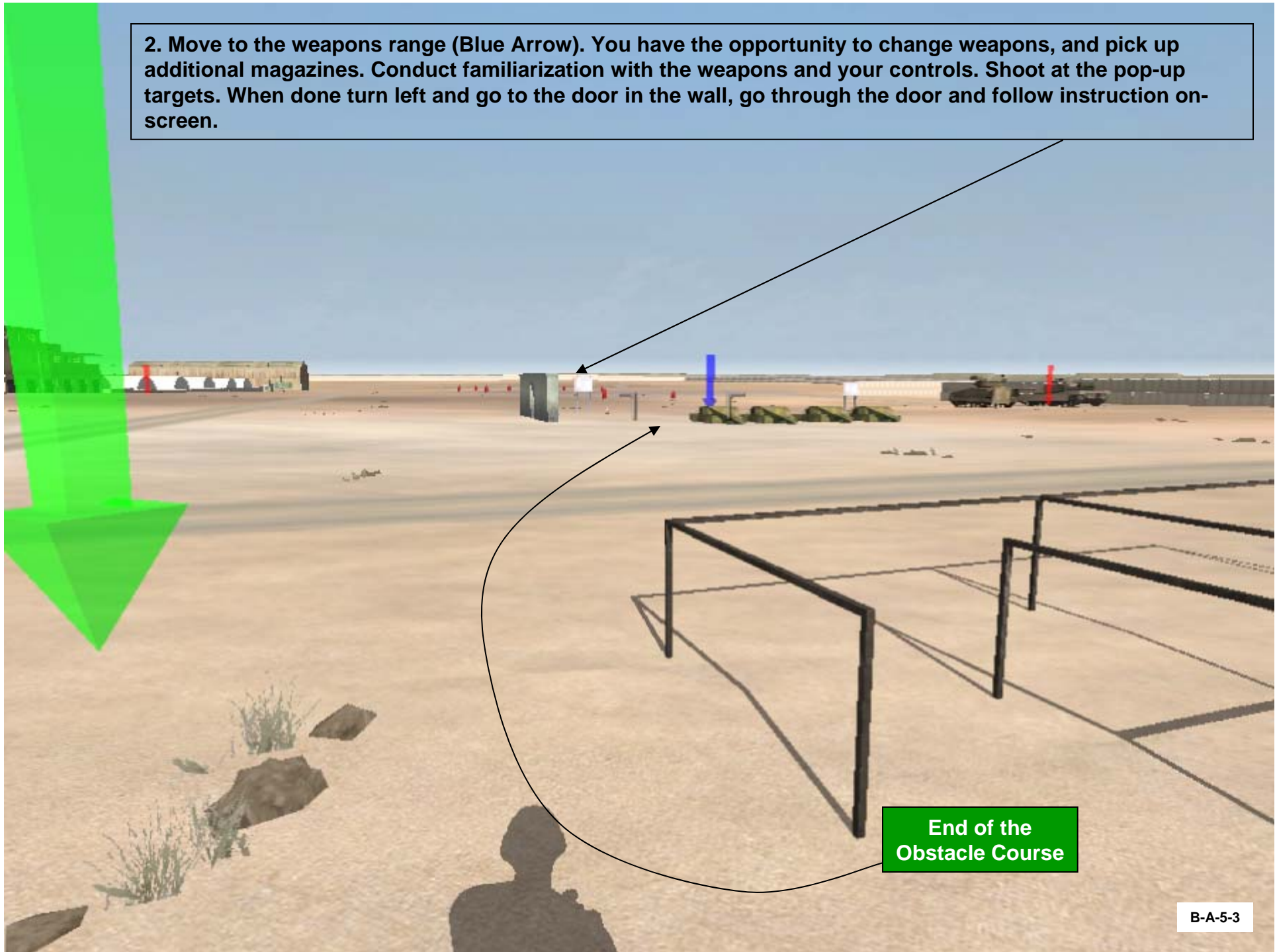
Overall Schematic of the Example VBS2 Orientation Course



1. When the scenario begins you will be standing (in your entity) in front of the obstacle course (Green Arrow). Walk forward through the window and then low crawl through the wire obstacle, run over the wooden bridge, and traverse the corral. At the end turn right and locate the weapons range.

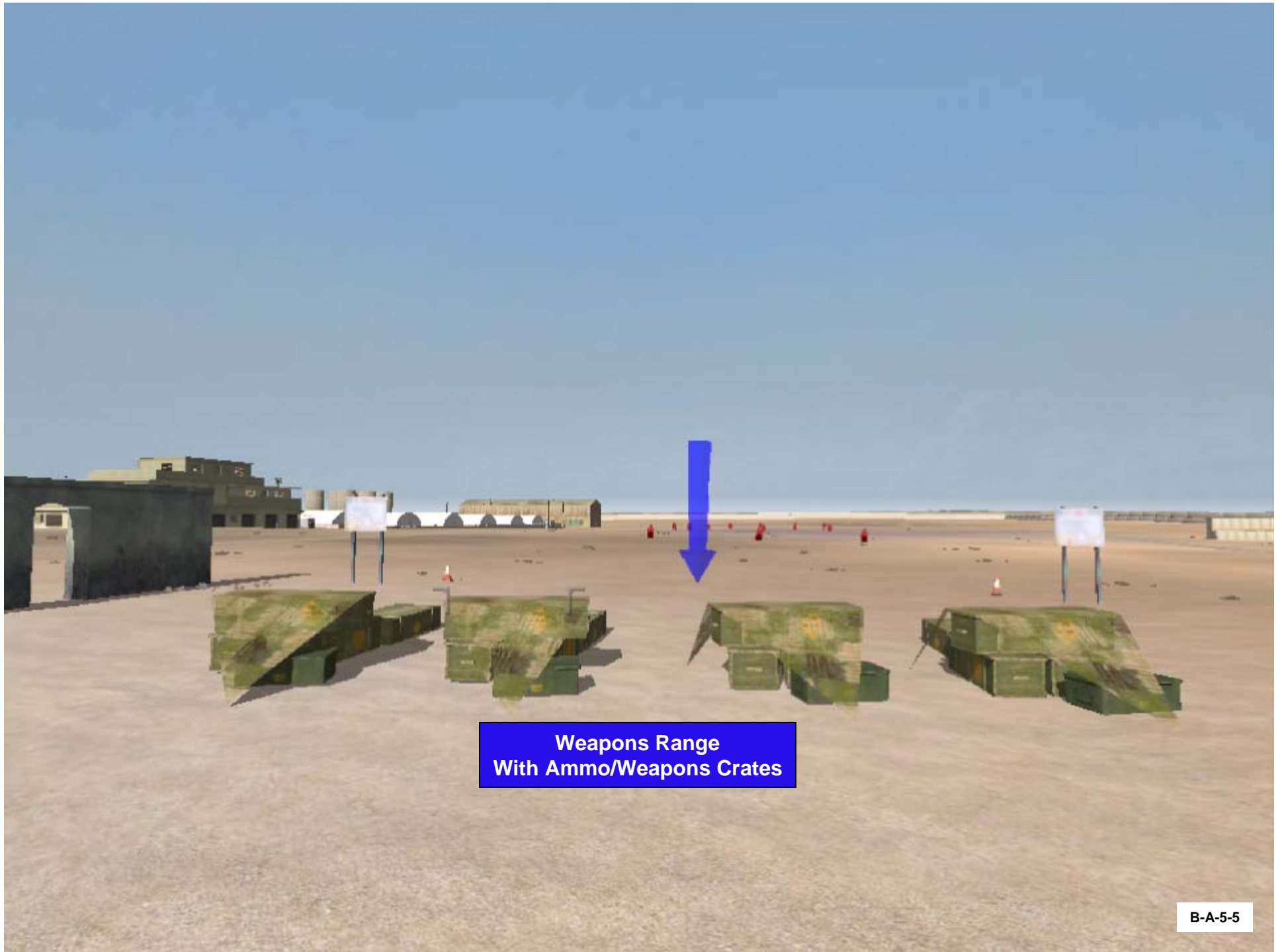


2. Move to the weapons range (Blue Arrow). You have the opportunity to change weapons, and pick up additional magazines. Conduct familiarization with the weapons and your controls. Shoot at the pop-up targets. When done turn left and go to the door in the wall, go through the door and follow instruction on-screen.



**End of the
Obstacle Course**





Weapons Range
With Ammo/Weapons Crates

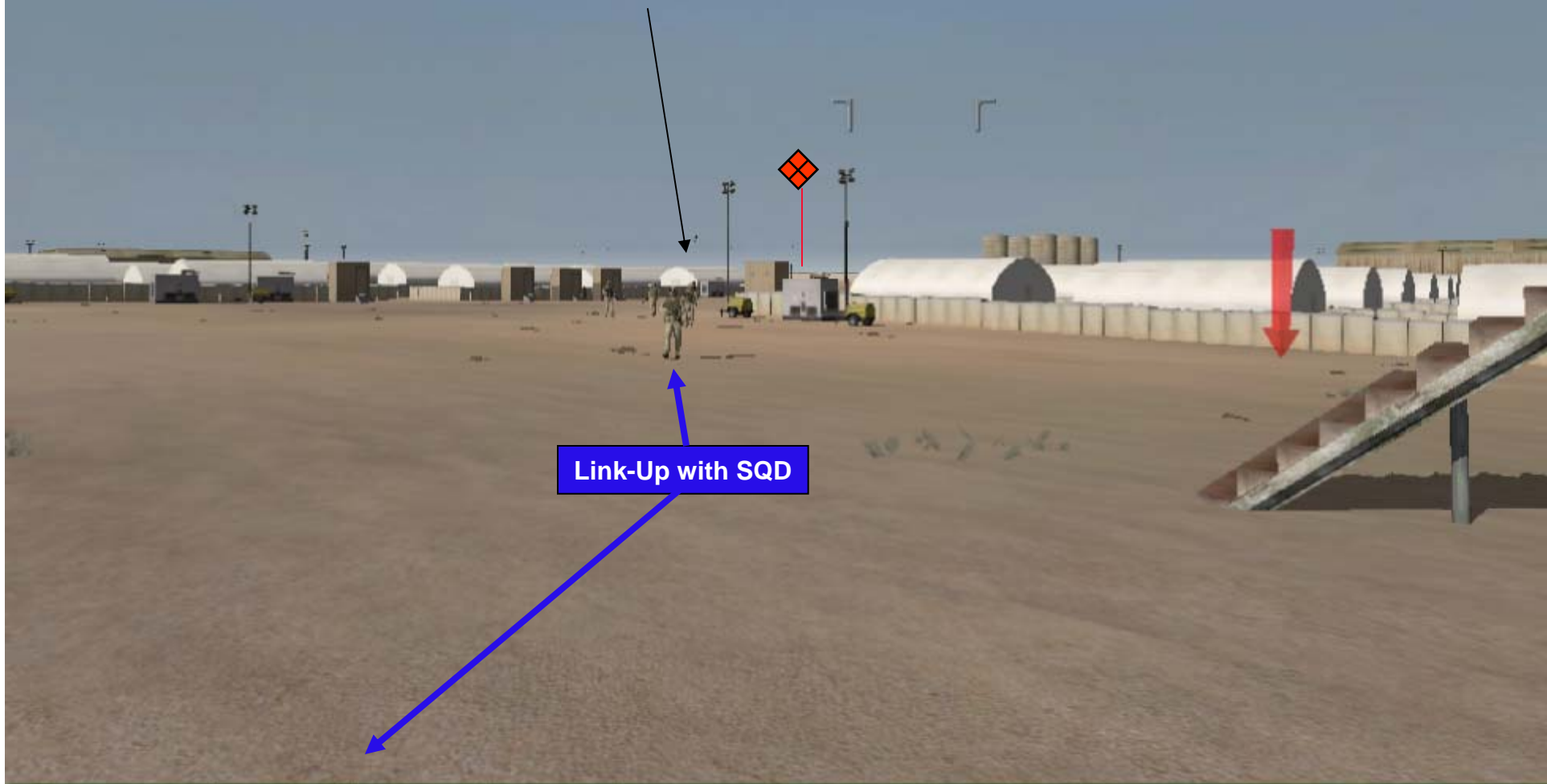
Hit the G key to view your compass then go 222 degrees to link up with your squad

3. Conduct link-up with your squad next to the radio tower (Blue Arrow). Practice controlling your squad. Go to the sandbag positions and hit "0-0-1" to activate the OPFOR troops. Use the controls to position your troops. When the OPFOR is dead move to the left side of the building (Red Arrow) and move to the vehicular driving course.

Link-Up with SQD



4. Position yourself and your squad so you can fire at the OPFOR troops That will appear when you move toward the rear of the building.



Link-Up with SQD

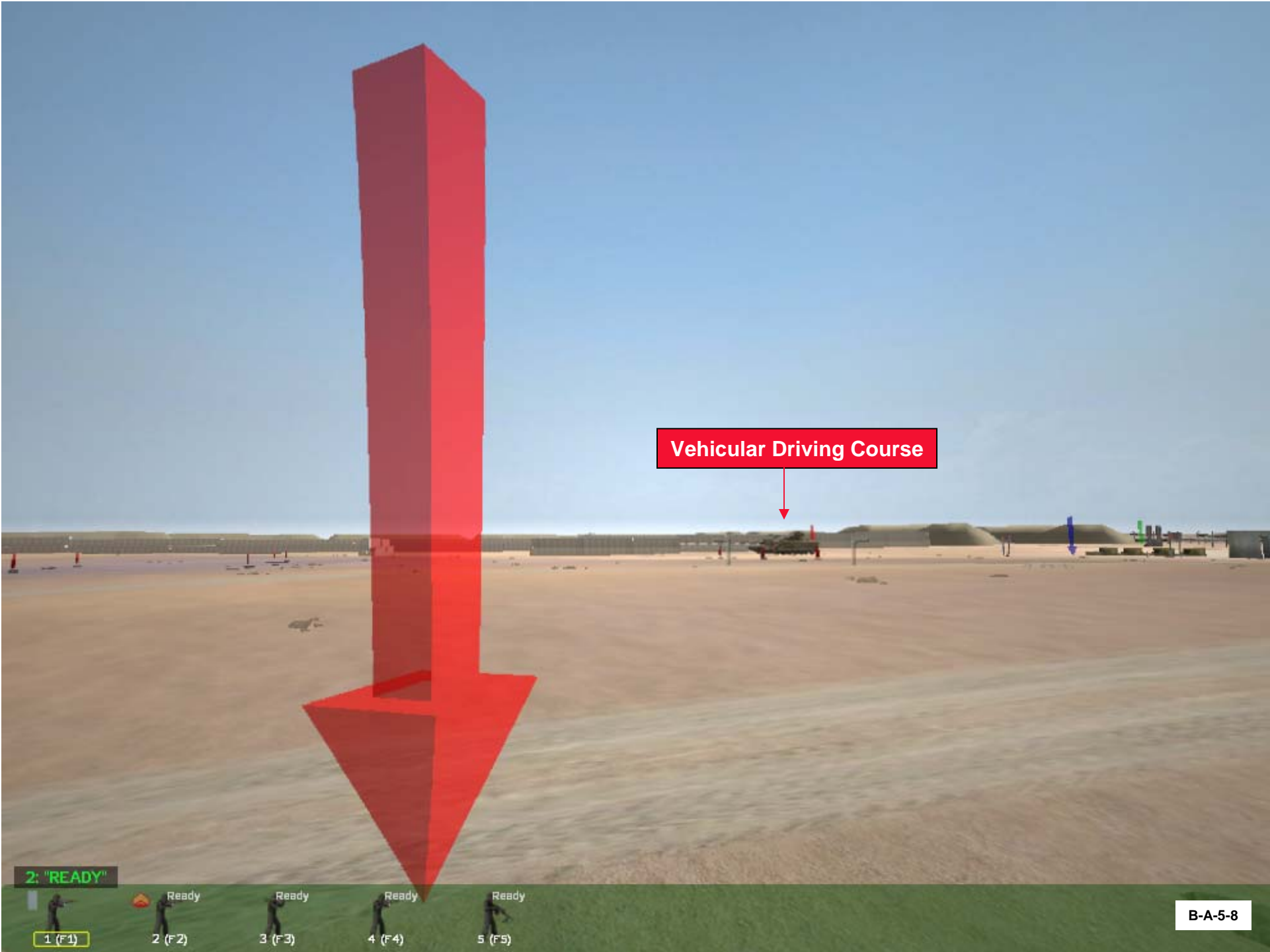
1 (F1)

2 (F2)

3 (F3)

4 (F4)

5 (F5)



Vehicular Driving Course

2: "READY"

Ready

Ready

Ready

Ready

1 (F1)

2 (F2)

3 (F3)

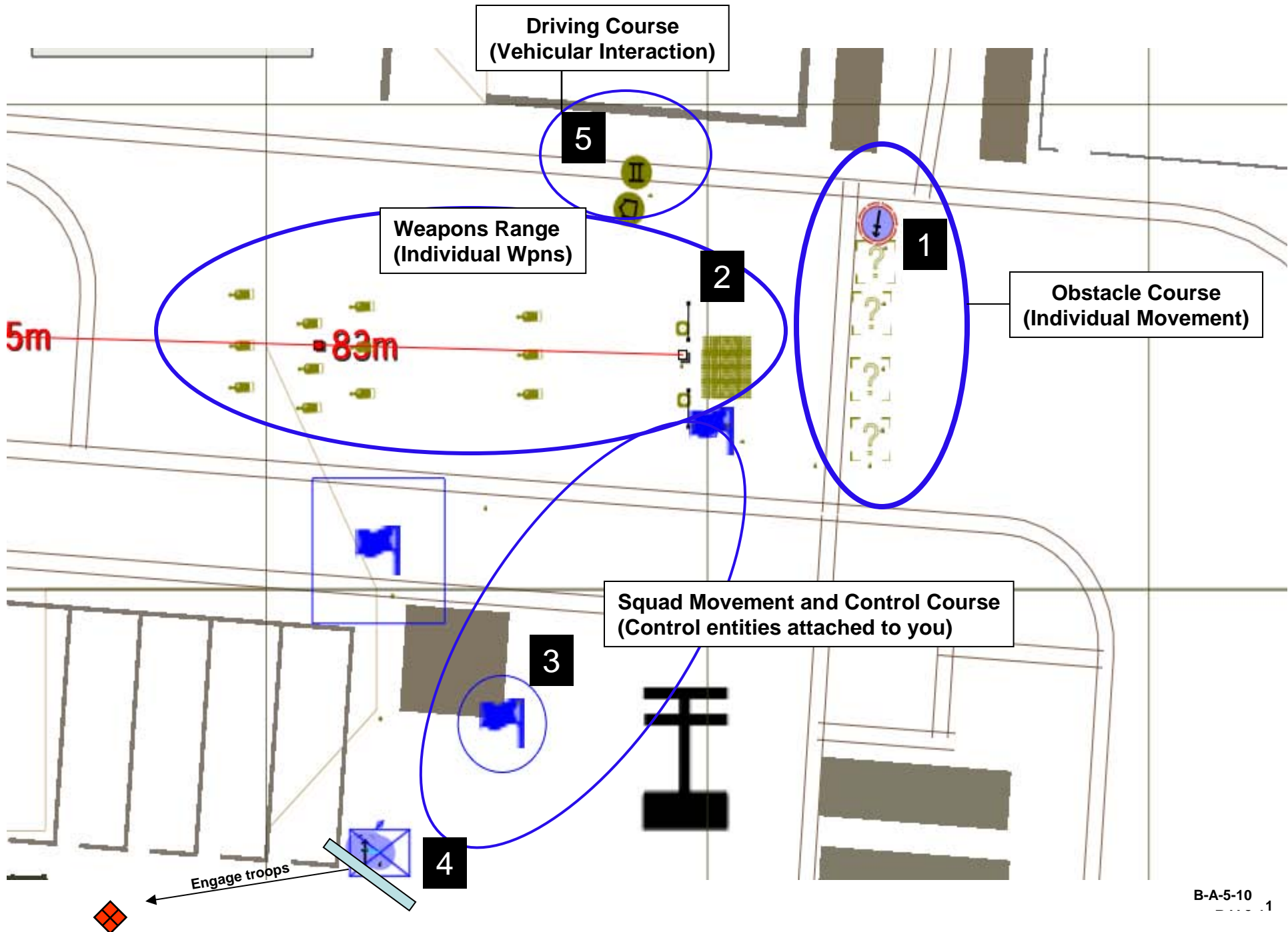
4 (F4)

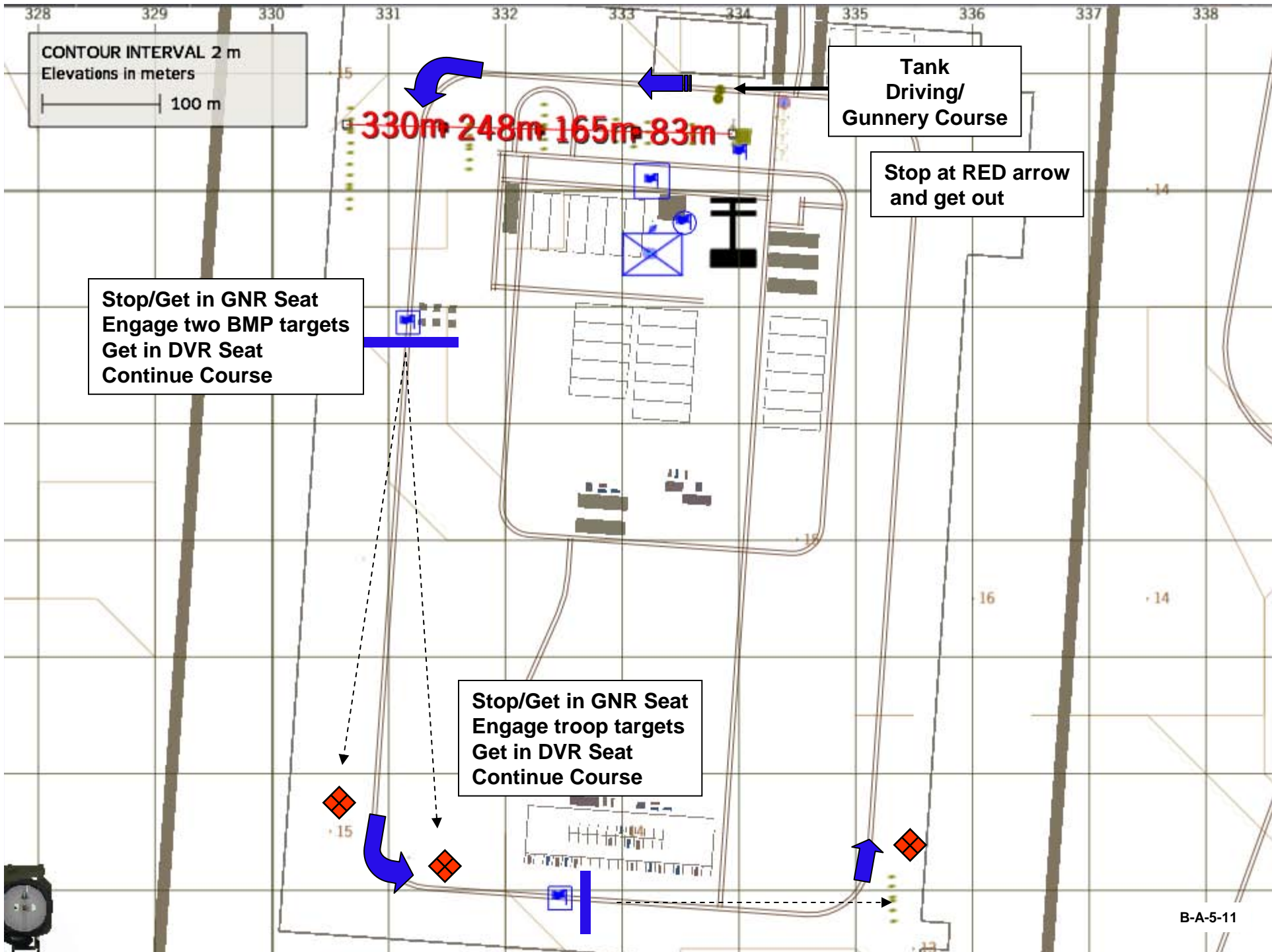
5 (F5)

5. Walk up to either vehicle and using the mouse scroll wheel interact with the vehicle, getting in the drivers compartment. Move the vehicle straight ahead and follow the road your on. Follow on screen instructions which will direct you to stop, get in the gunners seat and engage targets to your front. This will occur twice. Continue around the course until you get back to the start (Red Arrow). Get out, you are done with the orientation.

Vehicular Driving Course
Pick either vehicle







Tank
Driving/
Gunnery Course

Stop at RED arrow
and get out

Stop/Get in GNR Seat
Engage two BMP targets
Get in DVR Seat
Continue Course

Stop/Get in GNR Seat
Engage troop targets
Get in DVR Seat
Continue Course

Sample TTP

TTP DEFINITIONS and SAMPLE

Please apply the following definitions and examples as you develop TTPs.

Tactics: The employment and ordered arrangement of forces in relation to each other. They change frequently as the enemy reacts and friendly forces explore new approaches.

Example: *3rd PLT defends with dismounted squads on line.*

Techniques: Non-prescriptive ways or methods used to perform missions, functions, or tasks. They are the primary way to convey lessons learned that Units gain in operations.

Example: *Squad automatic weapons will cover the engagement area from a temporary fighting position.*

Procedures: Standard, detailed steps that prescribe how to perform specific tasks. They normally consist of a series of steps in a set order.

Example: *Select a temporary fighting position:*

- 1. Choose a position that uses available cover and concealment.*
- 2. Choose a position that allows observation and fire around an object while concealing most of your head and body.*
- 3. Choose a position that allows you to stay low when observing and firing.*
- 4. Choose a position that prevents you from silhouetting yourself against your surroundings.*
- 5. Follow your leader's directions after the initial selection of a temporary battlefield position.*

NON-DOCTRINAL COMPOSITE TTP DEFINITION

Tactics, Techniques and Procedures (TTP) refer to the general and detailed methods for using equipment and personnel to accomplish a specific mission under a particular set of METT-TC conditions.

Example: When conducting a daylight movement to contact A/1-67 AR will travel with two platoons forward and one platoon back as the CATK force. Each forward platoon will fly it's UAV at 300 feet and on the outer edge of the formation to cover the flanks. The CATK platoon will keep it's UAV in reserve if the unit loses one. The commanders UAV will be used to maintain situational awareness overall and fly behind the formation at 500 feet. This allows full aerial coverage of the formation and prevents penetration from the flanks. All other METT-TC variables remain constant.

Practice Graphical TTP Worksheet

Graphical TTP Worksheet – Appendix A7

Once a unit creates a draft TTP summary it should also be graphically represented. This graphic is to be filled out similar to a sketch card. Use the provided blank and example cards. The following are sample pieces of information that could go on the form. Each unit will have specific items they require on the graphical representation of the TTP, This is only an example.

Example Performance Steps (Similar to a Sketch/Range Card)

1. Place symbols representing the unit and enemy disposition in the sketch area.
2. Depict and identify all key-terrain features within direct line of sight and within the designated sector of fire and weapon system range.
3. Plot high speed avenues of approach, to include any path, trail, road or open area of fire, and weapon system range.
4. Plot a symbol indicating north.
5. Plot preplanned fires.

Note: Preplanned fires may be added after the PL/PSG receives information from the fire support officer (FSO) and constructs a platoon fire plan.

- a. Depict targets with a cross (+) symbol.
 - b. Identify each target with the assigned letter designation in the upper left and the numeric designation in the upper right quadrants of the cross symbol.
6. Plot a minimum of three range bands.

Example Performance Steps Cont:

Note: If time permits, range bands of 100, 500, and 1,000 meters will be used.

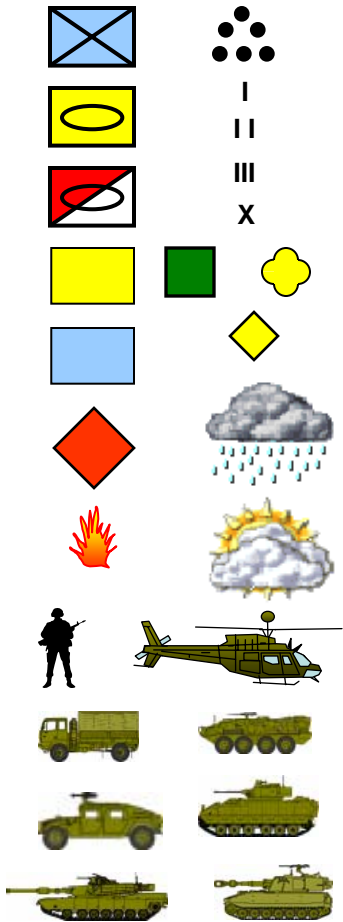
7. Identify and plot a reference point.
 - a. Identify a reference point that is:
 - (1) Near the center of the sector.
 - (2) At or beyond your maximum engagement range.
 - (3) Prominent, immovable, and easily identified.
 - (4) Not a target or can be easily destroyed.
 - b. Plot a reference point.
 - (1) Use a military map symbol, sketch of a feature, or brief word description.
 - (2) Mark with the "Ref Pt" inside a circle.
8. Plot obstacles and dead space.
 - a. Plot obstacles using approved military symbols.
 - b. Plot dead space using diagonal lines with the word "DEAD SPACE".
9. Plot the elements (to the left and right) and friendly OP/LP positions.
10. Mark identification data.
 - a. Write the vehicle bumper number directly below the vehicle symbol.
 - b. Identify the type of firing position by writing a "P" for primary position, an "A" for alternate position, or an "S" for supplementary position directly below the vehicle bumper number.

Example Performance Steps Cont:

11. Mark marginal information in the bottom left third of the sketch card to indicate the following:
 - a. List of TRPs.
 - b. Range to TRPs.
 - c. Description of TRPs.
 - d. Reference point information.
 - e. Range and description of obstacles.
 - f. Range and description to other likely target areas visible to your position.
12. Depict a legend in the bottom right third of the sketch card that indicates the following:
 - a. Explanation of symbols used on the sketch card.
 - b. Other control measures.
 - c. Other pertinent information as required.

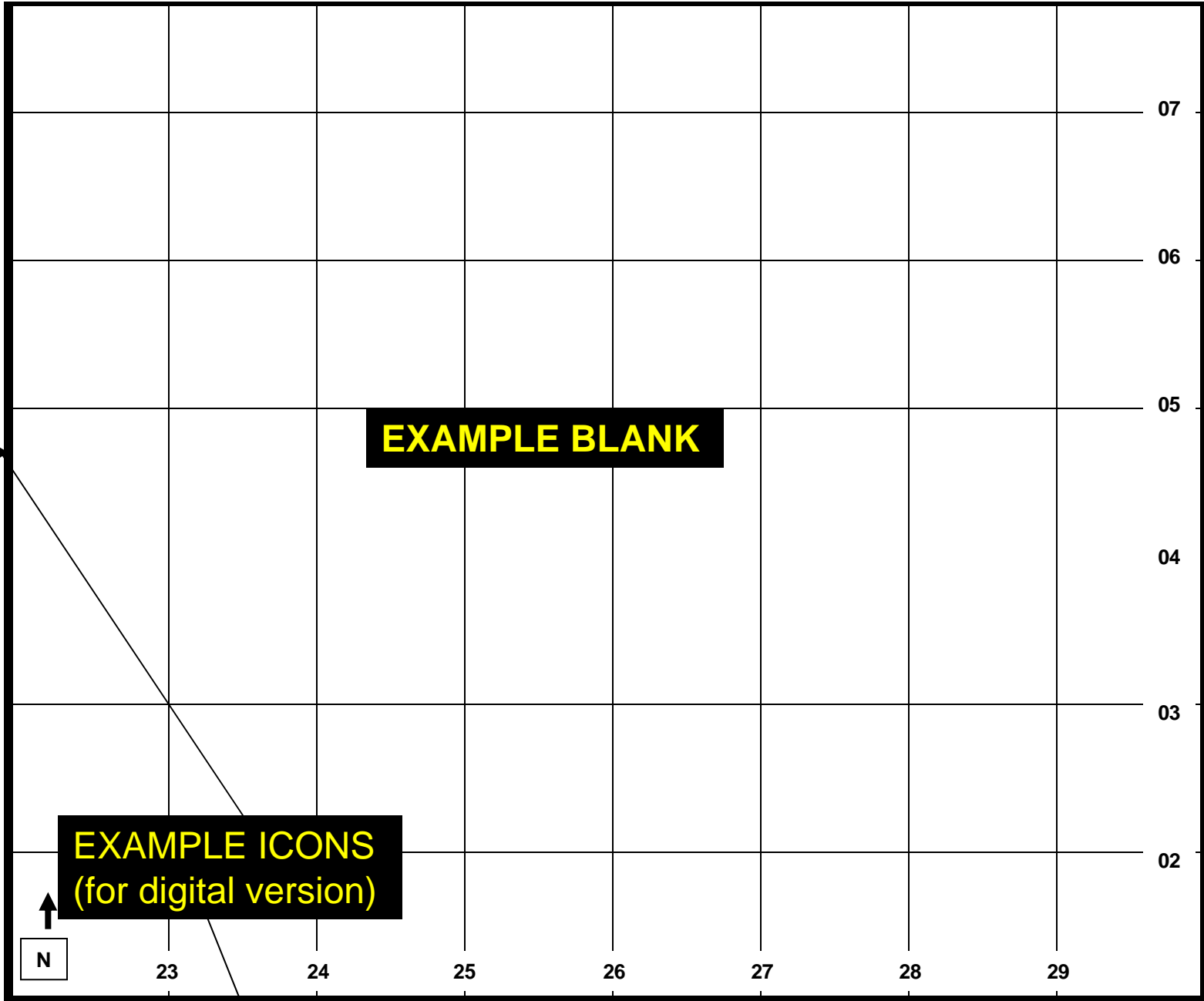
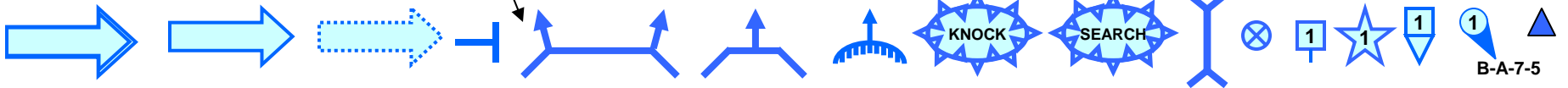
Note: The leader will consolidate the TTP graphics and draw a composite for the unit.

Unit Symbols

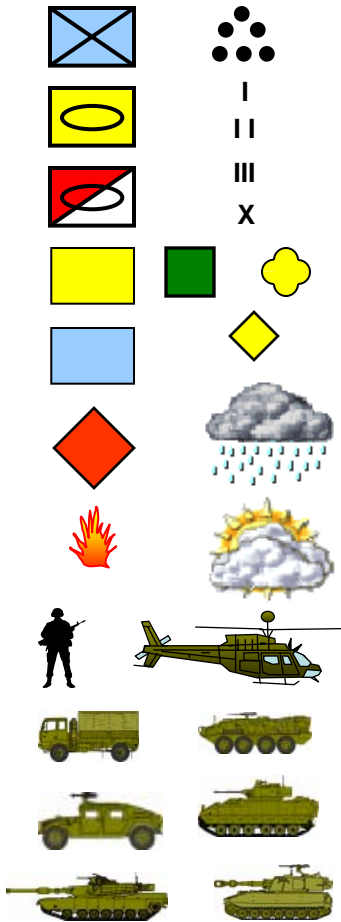


Mission:
Steps:

Graphics

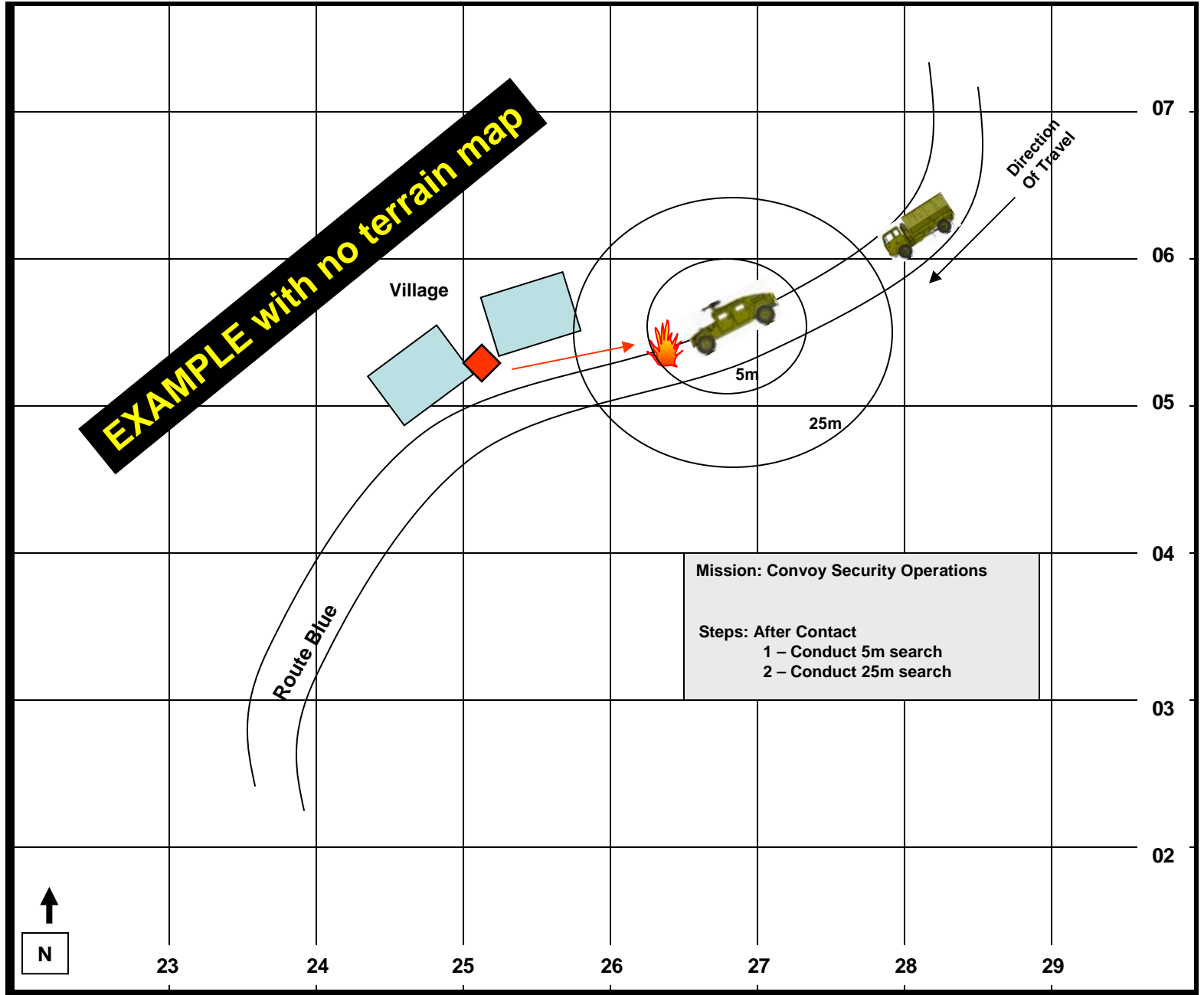
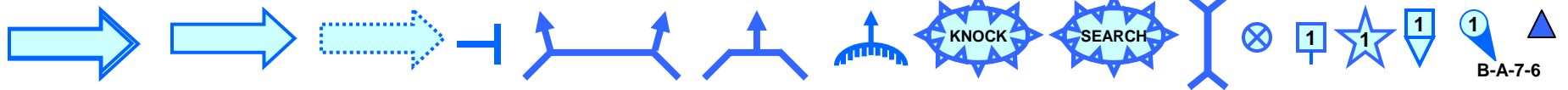


Unit Symbols



Mission:
Steps:

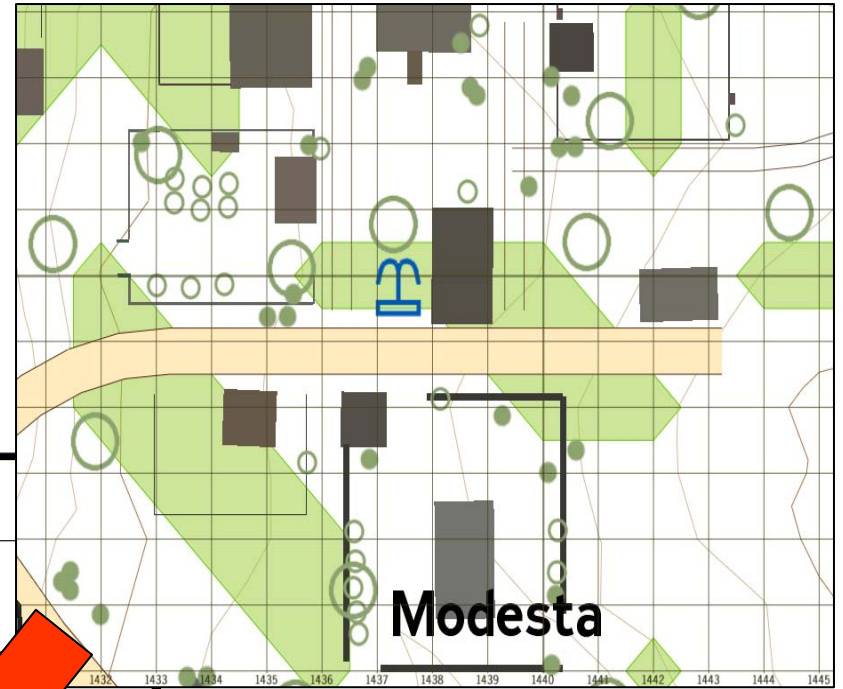
Graphics



The leader or facilitator can use either a generic graphic like the one below or can add map graphics to be more exact in placement of items on the page.

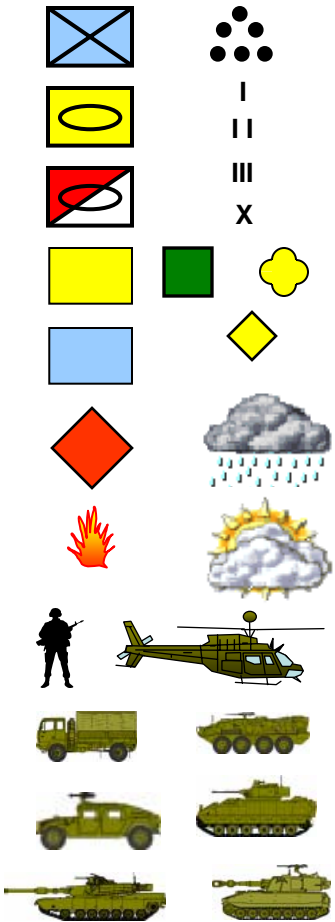
Generic graphic sheet w/no terrain

The graphic sheet features a grid with columns numbered 23 to 29 and rows numbered 02 to 05. A north arrow is located in the bottom-left corner. On the left side, there is a 'Unit Symbols' section with various icons for units, terrain, and weather. Below this is a 'Mission:' and 'Steps:' section with a grey box. At the bottom, there is a 'Graphics' section with various movement and action icons, including arrows, a search icon, and a knock icon. A red arrow points from the top-right corner of the grid towards the right side of the image.



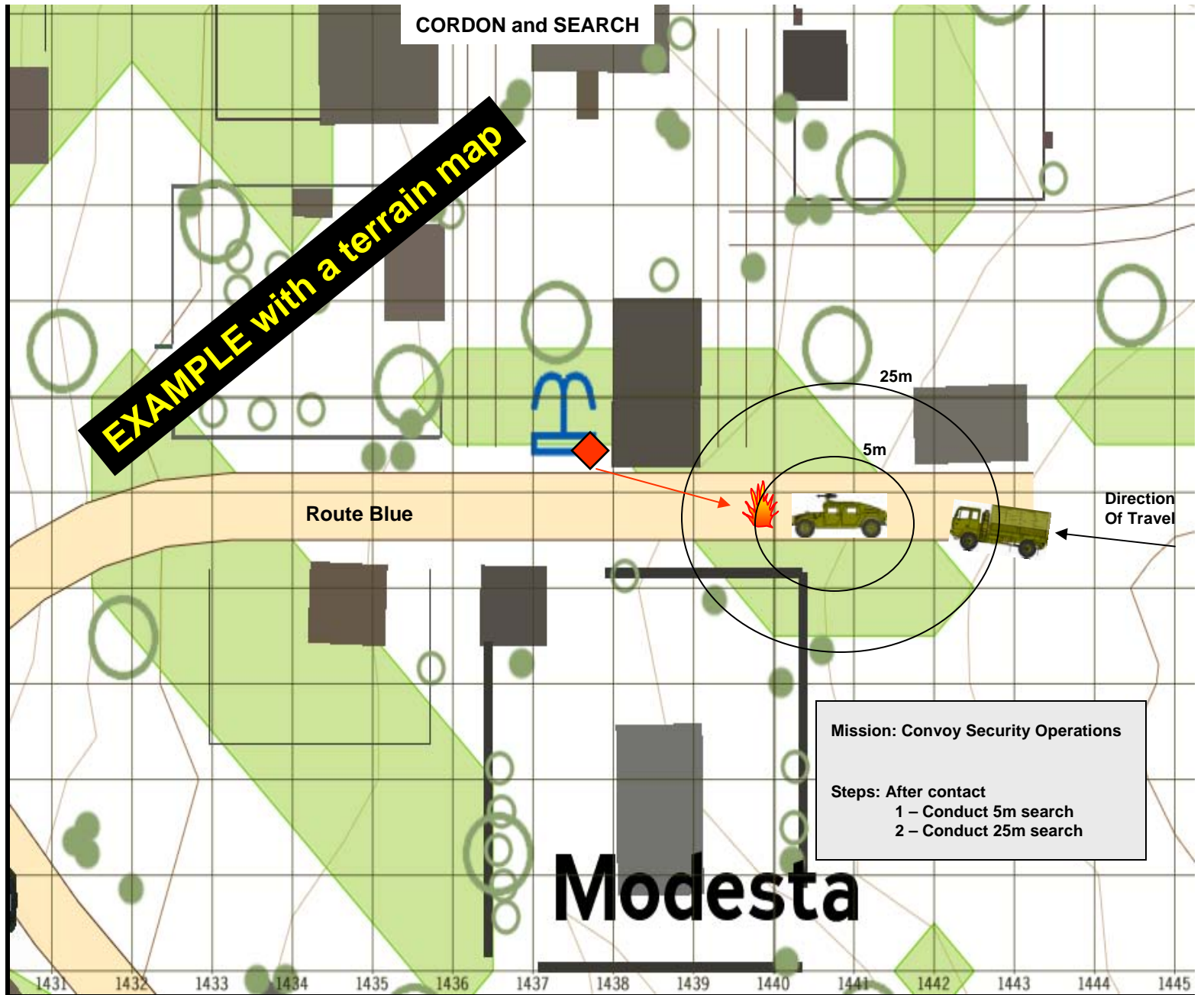
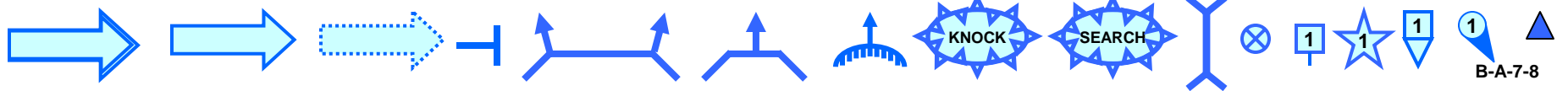
Screen shot from PowerPoint slid onto the generic graphic sheet. Grid lines will match actual maps.

Unit Symbols



Mission:
Steps:

Graphics



EXAMPLE with a terrain map

INSTRUCTIONS FOR COMPLETING TTP GRAPHICAL SKETCH

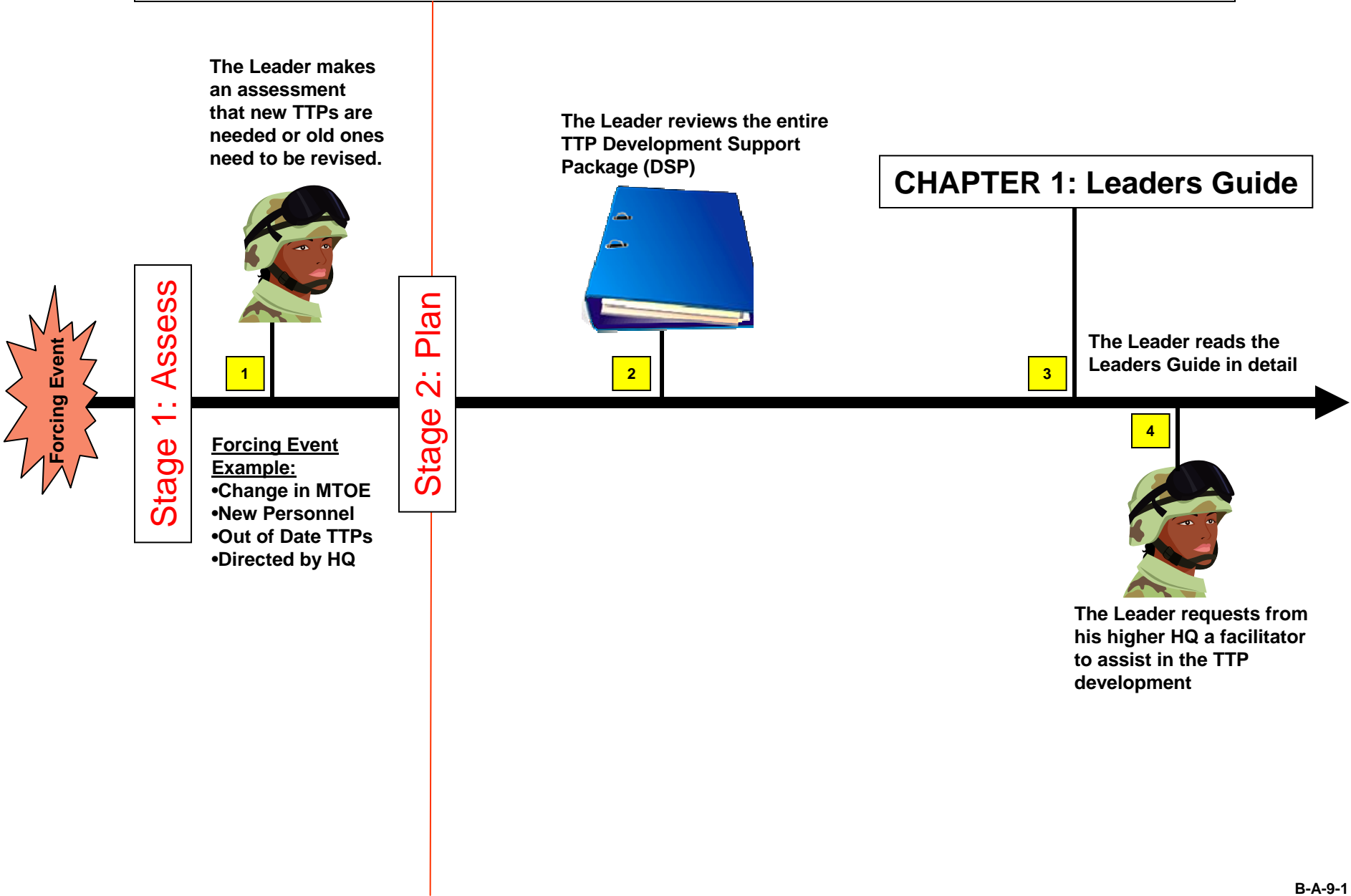
1. Place symbols representing the unit and enemy disposition in the sketch area.
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4. Plot a symbol indicating north.

Note: Preplanned fires may be added after the PL/PSG receives information from the fire support officer (FSO) and constructs a platoon fire plan.

5. Plot preplanned fires.
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 - b. Identify each target with the assigned letter designation in the upper left and the numeric designation in the upper right quadrants of the cross symbol.
6. Plot a minimum of three range bands.
7. Identify and plot a reference point.
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 - b. Other control measures
 - c. Other pertinent information as required.

Note: The leader will consolidate the TTP graphics and draw a composite for the unit.

TTP Development and Revision Timeline



TTP Development and Revision Timeline

The Facilitator reviews the entire TTP Development Support Package (DSP)



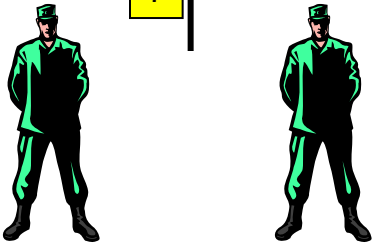
5

CHAPTER 2: Facilitators Guide

The Facilitator reads in detail the Facilitators Guide in the DSP

6

7



The Leader and Facilitator meet to discuss the TTP Development Process and how they will plan, prepare, execute, and implement the TTP Development/Revision

TTP Development and Revision Timeline

The Leader plans and requests resources for the table top and simulation exercises



8

- Table Top:**
 - Unit Personnel
 - Large Room w/table & chairs
 - Dry Erase or Butcher Paper
 - Paper and pens for note taking
 - References to include unit TSOP
- Simulation:**
 - All unit personnel
 - Communications
 - Tactical material
 - Support Personnel

The Leader determines Area of Operation (AO) for the Exercises*



10

9



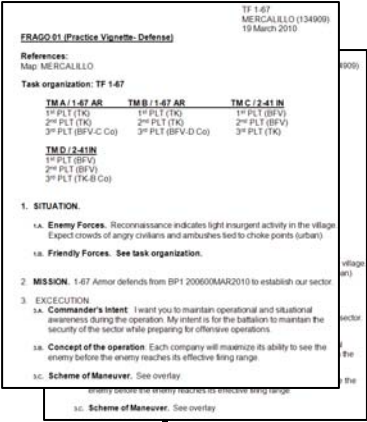
The Leader plans and request resources for live exercises

- Live:**
 - Unit personnel and MTOE equipment
 - Training Area(s)
 - Ammunition or simulators
 - OPFOR/Support Personnel
 - Exercise Control personnel

(*May use prepared material from the higher unit or simulation facility)

TTP Development and Revision Timeline

Stage 3: Prepare



11

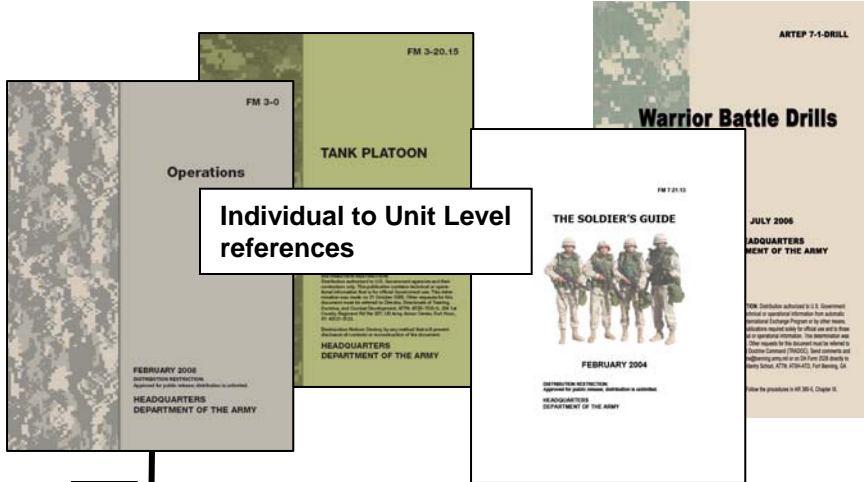
The Leader creates drafts of all tactical materials

12

The Facilitator creates the participant orientation

Toolbox for the Development Of Tactics, Techniques, and Procedures

Participants Orientation



13

The Leader and Facilitator gather all reference materials for the development to include already developed TTPs

14



The Leader finalizes vignettes with the Simulation Facility

TTP Development and Revision Timeline

Stage 4: Execute

The Leader issues OPORD/FRAGOS
And allows 1/3 – 2/3 for TLP



15

The Soldiers/Unit conduct a
table top exercise to
draft TTPs



17

16

**Toolbox for the Development
Of Tactics, Techniques,
and Procedures**

Participants Orientation

The Facilitator issues the
participant orientation
to the unit

18



The Soldiers/Unit conduct a
simulation exercise using
the TTPs developed
during the table top exercise

TTP Development and Revision Timeline

Stage 4: Execute

The Soldiers/Unit conduct an After Action Review (AAR) to keep, modify or delete draft TTPs



19

The Soldiers/Unit conduct an After Action Review (AAR) to keep, modify or delete draft TTPs



21

20



The Soldiers/Unit conduct a live exercise to confirm TTPs developed or revised.

TTP Development and Revision Timeline

Stage 5: Implement

The unit's Development/Revision form filled in with TTP summary and administrative data.

22

POC Name (First, Last): XXXXXXXXXXXX	Rank: XXX	Sponsor: ADCSINT, TRADOC
Event Name: Operation Iraqi Freedom II	Office of Primary Responsibility: MRX Threat Support, ADCSINT	
Commercial Phone#: XXXXXXXXXXXX	DSN Phone#:	
Email Address: XXXXXXXXXXXX	Date: (approx.) XXXXXXXX	Overall Classification: U/FOUO
1. (U) Title: Coalition Security Escort Convoy Ambush Caught on Video		
2. (U) Observation: Anti-Iraqi Forces (AIFs) unsuccessfully attacked Coalition Force (CF) vehicles while in traffic.		
3. (U) Discussion:		
<p>(U/FOUO) This is a rare AIF ambush caught on tape. This video will provide deploying units with the extraordinary opportunity to observe a typical AIF convoy ambush. In the attached video, a unit was filming a training video to show security escort trainees how to conduct an escort convoy. Based on what we can ascertain, there were four vehicles involved in the ambush, but not all were part of the training convoy. The two suburbans, one light colored suburban (filming) and one black suburban, were part of the training convoy. It is unknown whether other Coalition vehicles were following the training convoy. According to our source, the two HMMVVs, one desert camouflage and one forest camouflage, were not part of this convoy. Yet by chance, the HMMVVs found themselves in front of the training convoy and subsequently got caught up in the ambush. The audio appears to be coming from the suburban filming the video.</p> <p>(U/FOUO) While filming the training video, the convoy was attacked by what appears to be at least two explosive devices and small arms fire (SAF). The two explosions appear to be caused by either hand grenades, rocket propelled grenades or improvised explosive devices (IEDs). AIF engaged the CF vehicles first with an explosive device that impacted in the median, on the left side of the black suburban. A second device then impacted on the road near the black suburban's right side. AIFs then open up with SAF on the convoy.</p> <p>(U/FOUO) An unidentified leader in the suburban (filming) can be heard ordering his vehicle to move out. At first, the lead HMMVV moved out quickly, then the other vehicles sped up. In the end, the CF vehicles successfully sped through the kill zone and broke contact with the attackers. Many pedestrians could be seen running and diving for cover. Several local national vehicles could be seen turning away from the violence, stopping or moving out of the path of the convoy. One Volkswagen, apparently inadvertently, stopped in the pathway of the CF vehicles.</p> <p>(U/FOUO) It is unknown where the attackers were positioned. Multiple taxis could be seen on the right side of the street, as the CF vehicles were attacked. One taxi driver could be seen pointing out his window at the convoy for some unknown reason. Several multiple-story buildings are on each side of the kill zone, which could have been used for attack positions. As the attack progressed, it also appeared that the CF vehicles were engaged by at least one AIF vehicle that apparently gave chase, or at least the CF vehicles thought they were being chased.</p>		



Given to the higher HQ commander for approval and implementation into all TSOPs within the unit. (* May also be sent to CALL for wider dissemination)

APPENDIX B-B Tools and Forms

	Page
Appendix B-B-1. Facilitator’s Execution Plan	B-B-1-1
Appendix B-B-2. TTP Development/Revision Worksheets	B-B-2-1
Appendix B-B-3. TTP Conditions and Results Summary Worksheet.....	B-B-3-1

Appendix B-B-1

FACILITATOR'S EXECUTION PLAN

About This Document

- This tool gives facilitators an integrated set of materials to use in guiding activities during *Stage 4 – Execution* of the TTP development method.
- The goal of the development/revision process is to focus participants' attention on relevant aspects of tactical vignette to foster development of TTPs. (A vignette is a brief scenario designed for a MAPEX/table top, simulation, or live exercise to prompt Soldiers' thoughts, actions, and decisions.)
- The development process involves multiple steps that take the participants through a tactical situation and capture their ideas regarding appropriate TTPs.
- This package leads a group through multiple exercises. Please use the TTP Development/Revision Worksheets to record all ideas and TTP points.

STEP 1: Complete Checklist and Equipment Testing

NOTE TO FACILITATOR: Be sure to complete this step early enough to resolve any issues prior to participant arrival.

Advance Checklist for Materials and Equipment Testing

General Materials

- _____ Three-hole punch
- _____ Watch or clock
- _____ Whiteboard, poster paper/easel or large computer w/monitor (preferred)

Materials for Participants

- _____ Pens and/or markers
- _____ Handouts for exercises:
 - _____ Tactical Vignette Materials (hardcopy)
 - _____ ST-TTP Orientation
 - _____ Schedule of events
 - _____ METT-TC Variables and Conditions
 - _____ Definitions and Sample TTP
 - _____ TTP from previous sessions (if applicable)
 - _____ TTP Development/Revision Worksheets (Appendix B-B-2)

Materials for Facilitators

- _____ Facilitator's Execution Plan
- _____ TTP Development/Revision Worksheets (Appendix B-B-2)
- _____ ST-TTP Orientation
 - _____ Participant Orientation (Appendix B-A-1)
 - _____ FRAGO 1 Practice Vignette (Appendix B-A-2)
 - _____ Defense 3D Graphic (Appendix B-A-3)
 - _____ VBS2 Defense Graphic (Appendix B-A-4)
 - _____ VBS2 Orientation (Appendix B-A-5)
 - _____ Sample TTP
- _____ TTP Development Process Example Timeline
- _____ TTP Development Overall Checklist
- _____ Graphic TTP
- _____ Tactical Vignette Materials (hardcopy)
- _____ TTP Conditions and Results Summary Worksheet (Appendix B-B-3)

Equipment

- _____ Table Top (data recording tools – paper or digital)
- _____ Simulation (communication devices, workstations, and other systems)
- _____ Live (vehicles and other MTOE equipment)

STEP 2: Welcome Participants to the Event (5 minutes)

1. **WELCOME:** Facilitator says, “Welcome, my name is ____ and my assistants are ____.
The goal of this project is to develop tactics, techniques and procedures, or TTPs. You will learn more about the context of your tactical mission in your orientation materials. To develop the TTPs, we are asking you to role-play your assigned position in several scenario-based vignettes during MAPEX/table top, simulation or live exercises. You will initially develop a TTP in MAPEX/table top mode. After going over the scenario in table top mode (wargaming), we'll ask you to gather as a group and develop TTP(s). This part of the session will seem a lot like an AAR. However, instead of focusing on the outcome of the exercise, we want you to consider the "hows" and "whys" of your decisions and actions. In addition, we'll ask you to rate how mature or complete the TTP would be for implementation by the rest of the units in the command. Then you will use that TTP during a simulation exercise. During the simulation you will direct the workstation operator on the course of action to take for a given situation. Simultaneously, we want you to keep track of your thoughts and decisions regarding a chosen course of action and how a system (or new doctrine) could best be employed to assist you in completing your mission. When you are finished with the simulation, we will repeat the process of gathering as a group and review/refine the TTP(s). Overall, this session will take approximately 8 hours of your time. Our ultimate goal is to enhance our TSOP and our warfighting effectiveness.”

Do you have any questions?

We will now go over a brief overview of today's schedule:

Timeline*		
Step 3**	Orientation & Spin-Up <i>(If necessary)</i>	
3a	5 min	Purpose
	5 min	Capabilities
	5 min	Method/Process
	40 min	PowerPoint Orientation
3b	35 min	Practice Table Top Exercise
3c	30 min	Practice Simulation Exercise
3d	25 min	Practice Simulation Exercise AAR
	145 min	<i>(If necessary)</i>
Step 4	Table Top Exercise	
	10 min	TLP
	30 min	Wargaming
	40 min	
Step 5	Simulation Exercise #1	
5a	10 min	TLP
	25 min	Execution
5b	35 min	TTP-Focused AAR
	70 min	
Step 6	Simulation Exercise #2	
	10 min	TLP
	25 min	Execution
	35 min	TTP-Focused AAR
	70 min	<i>Repeat as needed</i>
Step 7	Wrap-Up	
	15 min	
Total Time Required		
	6-8 hrs	

* Steps 1 and 2 will occur prior to the session with participants.

** If possible, orientation and spin-up should occur 1-3 days prior to executing table top and simulation exercises.

STEP 3a: Orientation (Purpose, Capabilities, Method – 55 minutes)

SECTION OUTLINE:

- Describe purpose and desired end-state of TTP development activities
- Explain DOTMLPF changes that drive need for new/revised TTP
- Present overview of TTP development method, procedures, and schedule
- Move participants to simulation workstations for PowerPoint Orientation

NOTE TO FACILITATOR: The Orientation materials contain multiple items that participants may use at any time during the exercise including: tactical materials for the vignettes (e.g., OPOD, maps, FRAGOs, list of METT-TC variables/conditions, TTP Development/Revision Worksheets), project overview, equipment introduction, list of equipment capabilities, and agenda.

Instructions to Participants: “The materials in your handouts are available for your use as you work through the Table Top and Simulation vignettes. Right now, we want you to view the Orientation presentation on your workstation and ask questions as you go along.”

NOTE TO FACILITATOR: The workstation operators help each participant start the Overall Orientation (ppt slideshow) and answer questions as they arise. After the last participant finishes, the facilitator asks for questions. The next orientation will be simulation specific information provided by the simulation facility or coordinated through the facilitator. A practice simulation session (with practice vignette) should be conducted during the orientation period. Once all participants’ questions have been answered, the facilitator provides directions for the vignettes that begin in step 3b.

STEP 3b: Orientation - Practice TTP Development in Table Top Mode: Practice Vignette (35 minutes) (If Required)

SECTION OUTLINE:

- Provide instruction/review materials
- Have participants discuss current situation and METT-TC conditions
- Have the participants perform TLP to assign roles
- Allow 5-10 minutes to write down ideas individually
- Conduct a group brainstorming session that includes:
 - a) Recording all ideas without judgment
 - b) Generating/creating unique solutions
 - c) Encouraging contributions by all members
 - d) Identifying ideas that can be combined
 - e) Reviewing, vetting, and prioritizing ideas
- Examine the TTPs to make sure they answer "who," "what," "where," "when," and "why"
- Record final graphic and written TTPs
- Address any questions about TTP development using the Table Top mode

Instructions to Participants: "To familiarize you with the table top mode, we're going to conduct a practice event. Feel free to ask questions as we go along. In your handouts you will see a sample set of TTPs developed for the current scenario. In addition, you will find a TTP Development/Revision Worksheet you'll use to record your notes and TTP ideas. The first section of the worksheet provides definitions and examples of TTPs, and explains how to use the worksheets. Notice you can depict your TTPs in graphic and written forms. Section 2 contains the blank worksheets you will be filling out. Take a couple minutes to look over these items."

NOTE TO FACILITATOR: Give the participants 5 minutes to study the **TTP Development/Revision Worksheet** package.

Instructions to Participants: "During the table top exercise, you should consider the current METT-TC conditions in war-game fashion. You should consider the METT-TC conditions as you work through your Troop Leading Procedures and assign roles. As you execute your assigned role, remember to focus your attention on why you choose a particular course of action. Consider this a brainstorming period. There are no bad ideas. You should refer to the sample TTP but not be limited by the format or structure. You can develop your TTP as written statements and/or graphic representations at your discretion. For example, it may be useful to depict force deployment, routes, and patterns of movement graphically, and descriptions for the timing of events and dynamic factors (speed, height) in a written format. Please develop a set of TTPs that would enable you to optimally employ a _____ in the situation simulated in this vignette. TTPs can be developed for your specific role, as well as the overall mission. Also, please consider the METT-TC conditions/variables listed in your worksheet as they relate to this vignette. After a few minutes we will discuss everyone's TTP thoughts as a group and try to reach consensus."

NOTE TO FACILITATOR: Let the participants get a feel for the table top exercise as needed. Help them understand the table top environment and their role in the TTP development process. Allow them a few minutes to brainstorm individually and to write down their own thoughts on the **TTP Development/Revision Worksheet**. People generate more ideas when they first have a chance to write them down individually, before they state them aloud as a group. After 5-10 minutes, assemble all participants for a group TTP development session. Systematically guide the participants through the development. When participants develop their plan of action, they will decide on specific roles, tasks, and functions. Start with force employment and arrangement. Ask them if they can summarize it in a sentence or two (tactic). When the participants are assigned tasks, ask them if they can summarize the task in a sentence or two (technique). As the exercise progresses, ask them to verbalize the important steps along the way (procedures). To facilitate effectively, you need to get participants to transform the ideas discussed during the session into TTPs.

Some questions you may ask are:

1. What are you paying attention to in this situation?
2. What factors are you considering as you plan a course of action?
3. What is the best course of action to take at this point and why?
4. What is influencing the approach you take?
5. What technique(s) are you using at this point to achieve the mission?
6. Is there a specific procedure that you would follow at this point?

Task one (or more) person(s) to serve as the note taker and have them record the TTPs. The TTPs may be recorded either electronically or by hand. Record notes yourself about things you want to explain at the end of the practice event.

Use this space to record any notes:

After working through all of the METT-TC sections, guide the participants in generating summary TTP statements. Once consensus is reached, have the leader record the final TTPs on his TTP Summary and Graphic Worksheet. The exercise number, METT-TC conditions, and outcome should be recorded on the TTP Conditions and Results Summary Worksheet. Review the final TTPs. Finally, ask the participants to provide a rating for how complete or mature they believe the TTP to be for the current vignette.

At the end of the Table Top practice event:

- Facilitator asks the participants what questions they have about the Table Top mode, the vignette, their tactical role, or TTP development.
- Facilitator uses notes made during the vignette to clarify or explain how the participants should be role-playing and developing TTP.
- Give the participants a 5-minute break while you verify the workstations are ready for the first practice exercise in simulation mode.

STEP 3c: Orientation - Practice TTP Development in Simulation

Mode: Practice Vignette (30 minutes) (If Required)

SECTION OUTLINE:

- Provide instruction/review materials (as needed)
- Have participants discuss current situation and METT-TC conditions (as needed)
- Review the TTPs
- Spend 5-10 minutes assigning roles in the exercise by conducting TLP
- Conduct the practice simulation exercise
- Address any questions about TTP development using the simulation mode

Instructions to Participants: "To familiarize you with the simulation, we're going to conduct a practice event. Feel free to ask questions as we go along. In your handouts is a sample set of TTPs developed for the current scenario. Take a few minutes to read over the TTPs and assigned roles."

NOTE TO FACILITATOR: Give the participants 5 minutes to study the **TTP Development/Revision Worksheet** package. Once the participants are clear about their assigned roles, allow them to work in the simulation. Make sure they are trained to the point where they are comfortable and fluid operating in the simulation.

Instructions to Participants: "You should execute your assigned role according to the TTP developed in the Table Top exercise. Remember the goal here is to test those TTPs. If you deviate from your assigned role, or engage in additional activities, be sure to report it during the AAR. Also, although this is a simulation, do not treat it as a game. Perform as if this was an actual mission. Finally, think about the TTP that would be appropriate, even though we won't be developing TTP for this practice vignette."

NOTE TO FACILITATOR: Monitor the participants during the simulation. If they deviate from their assigned roles, ask them why they deviated during the AAR. Take note of any additional actions they performed beyond the TTP they developed. The simulation will often reveal elements of the mission that participants fail to consider during war gaming.

At the end of the Simulation practice event:

- Facilitator asks the participants what questions they have about the simulation, the vignette, their tactical role, or TTP development.
- Facilitator brings the participants together to conduct a TTP-focused AAR.

STEP 3d: Orientation - Practice TTP-Focused AAR Following Simulation Mode: Practice Vignette (25 minutes) (If Required)

SECTION OUTLINE:

- Provide instruction/review materials (as needed)
- Conduct a TTP-focused AAR:
 - a) State the mission
 - b) Discuss the Who, What, When, Where, How, and Why of the operation pertaining to the new piece of equipment, new personnel, etc.
 - c) Summarize the TTP in concise statements that answer the “who,” “what”, “where”, “when,” “why,” and “how.”
- TTP-focused AAR key points
 - a) Concentrate on why the unit is conducting the AAR, do not discuss the wins or losses. Discuss the development of the TTP.
 - b) Explain that this is not an evaluation of the unit.
- Record final graphic and written TTPs
- Address any questions about the TTP-focused AAR

Instructions to Participants: “Individually, please take about 5 minutes to review and evaluate the effectiveness of the TTPs that you used during the simulation. Are there items that didn’t work for you, your platoon, or your company? Did you deviate from the initial TTP? Did you change your course of action as the simulation played out? Are there TTP you would like to modify or add? The goal is to improve upon what you have already generated. In your handouts you will find a fresh copy of the TTP Development/Revision Worksheet. Please take a few minutes to develop and refine a set of TTPs that would enable you to optimally employ a(n) _____ in the simulation. After you write down your ideas, we will discuss them together.”

INSTRUCTIONS TO FACILITATOR: After 5 minutes to write down their ideas individually, assemble all participants for a group TTP-focused AAR. During this session, systematically guide the participants in assessing the TTPs generated. Out of habit, participants may revert to conducting a traditional AAR. Remember to keep participants focused on TTP development. Task one (or more) person(s) to serve as the note taker to record the TTP that the group agrees on. The TTP may be recorded either electronically or by hand. Record notes yourself about things you want to discuss.

Use this space to record any notes:

After working through all of the METT-TC sections, guide the participants in generating summary TTP statements. Once consensus is reached, have the leader record the final TTP on his TTP Summary and Graphic Worksheet. Review the final TTP. The exercise number, METT-TC conditions, and outcome should be recorded on the TTP Conditions and Results Summary Worksheet. Finally, ask the participants to provide a rating for how complete or mature they believe the TTP to be for the current vignette.

At the end of the TTP-focused AAR practice event:

- Facilitator asks the participants what questions they have about the simulation, the vignette, their tactical role, or TTP development.
- Facilitator uses notes made during the vignette to clarify or explain how the participants should be role-playing and developing TTP.
- Participants take a 5-minute break while you review the procedures for the first TTP development run in table top mode.

STEP 4: TTP Development in Table Top Mode Vignette ____ (40 minutes)

SECTION OUTLINE:

- Provide instructions/review materials
- Have participants discuss current situation and METT-TC conditions
- Have participants conduct TLP
- Allow 5-10 minutes to write down ideas individually
- Conduct a group brainstorming session that includes:
 - a) Recording all ideas without judgment
 - b) Generating/creating unique solutions
 - c) Encouraging all members to contribute
 - d) Identifying ideas that can be combined
 - e) Reviewing, vetting, and prioritizing ideas
- Examine the TTPs to make sure they answer "who," "what," "where," "when," and "why"
- Record final graphic and written TTPs
- Address any questions about TTP development using the Table Top Mode

Instructions to Participants: "We're now ready to develop TTP in a table top exercise. Feel free to ask questions as we go along. In your handouts you will see a sample set of TTP developed for the current scenario. In addition, you will see a TTP Development/Revision Worksheet which is used to record your TTP ideas. We'll follow the process specified in the Worksheet to brainstorm and then develop TTP in graphic and written form. Everyone should have a blank Worksheet to record your brainstorming ideas."

NOTE TO FACILITATOR: Give the participants 5 minutes to look over the **TTP Development/Revision Worksheet.**

Instructions to Participants: "During the table top exercise, you should consider the current METT-TC conditions and wargame. You should consider the METT-TC conditions as you work through your Troop Leading Procedures and assign roles. As you execute your assigned role, remember to focus your attention on why you choose a particular course of action. There are no bad ideas in brainstorming. You should refer to the sample TTP but not be limited by the format or structure. You can develop your TTP as written statements and/or graphic representations at your discretion. For example, it may be useful to depict force deployment, routes, and patterns of movement graphically, and descriptions for the timing of events and dynamic factors (speed, height) in a written format. Please develop a set of TTP that would enable you to optimally employ a _____ in this vignette. TTP can be developed for your specific role, as well as the overall mission. Also, please consider the METT-TC conditions/variables listed in your worksheet as they relate to this vignette. After a few minutes we will discuss everyone's TTP ideas as a group until we reach consensus."

NOTE TO FACILITATOR: Let the participant(s) get a feel for the table top as needed. Help them understand the table top environment and their role in the TTP development process. Allow

them a few minutes to brainstorm individually and to write down their own TTP on the TTP Development/Revision Worksheet. After 5-10 minutes, assemble all participants for a group TTP development session. Systematically guide the participants. As they develop their plan of action, they will decide on specific roles, tasks, and functions. Start with force employment and arrangement (tactic). Ask them if they can summarize it in a sentence or two. When the participants are assigned tasks, ask them if they can summarize the task in a sentence or two (technique). As the exercise progresses, ask them to verbalize the important steps along the way (procedures). Guide participants to transform the ideas discussed during the session into TTP.

Some questions you may ask;

1. What are you paying attention to in this situation?
2. What factors are you considering as you plan a course of action?
3. What is the best course of action to take at this point and why?
4. What is influencing the approach you take?
5. What technique(s) are you using at this point to achieve the mission?
6. Is there a specific procedure that you would follow at this point?

Task one (or more) person(s) to serve as the note taker and record the TTP. The TTP may be recorded either electronically or by hand. Record notes yourself about things you want to discuss.

Use this space to record any notes:

After working through all of the METT-TC sections, guide the participants in generating summary TTP statements. Once consensus is reached, have the leader record the final TTP on his TTP Summary and Graphic Worksheet. Review the final TTP. The exercise number, METT-TC conditions, and outcome should be recorded on the TTP Conditions and Results Summary Worksheet. Finally, ask the participants to provide a rating for how complete or mature they believe the TTP to be for the current vignette.

At the end of the table top TTP development event:

- Determine if the TTP need additional refinement in table top mode; are they ready for the next mode of development (simulation or live)? Or are they ready to submit to the appropriate commander for implementation?
- Schedule/prepare for the next exercise.

STEP 5a: TTP Development in Simulation Mode Vignette ____
(35 minutes)

SECTION OUTLINE:

- Provide instruction/review materials (as needed)
- Have participants discuss current situation and METT-TC conditions (as needed)
- Review the TTP
- Allow 5-10 minutes for participants to conduct TLP
- Execute the simulation exercise
- Address any questions about TTP development using the Simulation Mode

Instructions to Participants: "Feel free to ask questions as we go along. In your handouts you will see a sample set of TTP developed for the current scenario. Take a few moments to review and discuss these materials and assign your roles in the simulation."

NOTE TO FACILITATOR: Give the participants five minutes to look over the **TTP Development/Revision Worksheet**. Once the participants are clear about their assigned roles, allow them to work in the simulation. Make sure they are trained to the point where they are comfortable and fluid operating in the simulation.

Instructions to Participants: "You should execute your assigned role according to the TTP from the table top exercise. Remember the goal here is to test those TTP. If you deviate from your assigned role, or engage in additional activities, be sure to report it during the AAR. Also, although this is a simulation, do not treat it as a game. Conduct yourself as if this was an actual mission."

NOTE TO FACILITATOR: Monitor the participants during the simulation. If they deviate from their assigned roles, ask them why they deviated during the AAR. Take note of any additional behaviors they performed beyond the TTP they developed. The simulation will often reveal elements of the mission participants fail to consider during war gaming.

Use this space to record any notes:

At the end of the Simulation event:

- Facilitator asks the participant(s) what questions they have about the simulation, the vignette, their tactical role, or TTP development.
- Facilitator brings the participants together to conduct a TTP-focused AAR.

STEP 5b: TTP-Focused AAR Following Simulation Mode Vignette (35 minutes)

SECTION OUTLINE:

- Provide instruction/review materials (as needed)
- Conduct a TTP-focused AAR:
 - a) State the mission
 - b) Discuss the Who, What, When, Where, How, and Why of the operation pertaining to the new piece of equipment, new personnel, etc.
 - c) Summarize the TTP in concise statements that answer the “who,” “what,” “where,” “when,” “why,” and “how.”
- TTP-focused AAR key points
 - a) Remain focused on why the unit is conducting the AAR, do not discuss the wins or losses. Discuss the development of the TTP.
 - b) Explain this is not an evaluation of the unit
- Record final graphic and written TTP
- Address any questions about the TTP-focused AAR

Instructions to Participant: “Individually, please take about 5 minutes to review and evaluate the effectiveness of the TTP that were used during the simulation. Are there items that didn’t work for you, your platoon, or your company? Did you deviate from the initial TTP? Did you change your course of action as the simulation played out? Are there some TTP items you would like to modify or add? The goal is to improve upon what you have already generated. In your handouts you will find a fresh copy of the TTP Development/Revision Worksheet. Please take a few minutes to develop and refine a set of TTP items that would enable you to optimally employ a(n) _____ in the simulation. After you write down your ideas, we will discuss them together.”

INSTRUCTIONS TO FACILITATOR: After 5 minutes to write down their ideas individually, assemble all participants for a group TTP-focused AAR. During this session, systematically guide the participants in assessing the TTPs generated. Out of habit, participants may revert to conducting a traditional AAR. Remember to keep participants focused on TTP development. Have one (or more) person(s) record the TTP items that the group has agreed on, either electronically or by hand. Record notes yourself about things you want to discuss.

Use this space to record any notes:

After working through all of the METT-TC factors, guide the participants in generating summary TTP statements. Once consensus is reached, have the leader record the final TTP on his TTP Summary and Graphic Worksheet. Review the final TTP. The exercise number, METT-TC conditions, and outcome should be recorded on the TTP Conditions and Results Summary Worksheet. Finally, ask the participants to provide a rating for how complete or mature they believe the TTP to be for the current vignette.

At the end of the TTP-focused AAR:

- Determine if the TTP need additional refinement in the simulation mode; are they ready for the next mode of development (live)? Or are they ready to submit to the appropriate commander for implementation?
- Schedule/prepare for the next exercise.

STEP 6: Repeat steps 5a and 5b until TTPs are sufficiently mature

INSTRUCTIONS TO FACILITATOR: Sufficient maturity will be determined by the leader, or group consensus. “Sufficiently mature TTP” does not imply that the TTP are completely mature and are ready for implementation. The term implies that TTP development in the current mode (e.g., simulation) has run its course for that vignette. That is, the potential gain of repeating TTP development in the current mode is outweighed by the time and effort involved.

Once the leader has determined that the TTP has reached sufficient maturity, the leader may choose to assemble the final TTP Summary and Graphic Worksheets from all exercises and complete the TTP Conditions and Results Summary Worksheet for submission to his commander for approval.

STEP 7: Wrap Up

- Facilitator collects all materials from participants.
- Facilitator and leader answer final questions.
- Facilitator thanks participants and releases them.
- Facilitator labels and files all materials in appropriate folders.

End of Session

Appendix B-B-2

TTP DEVELOPMENT / REVISION WORKSHEETS

General Instructions:

- a. This element of the DSP is the worksheet package used to develop and revise TTPs.
- b. Each Soldier participating in TTP development should get a copy of this package.
- c. The Facilitator should use the worksheets to guide group activities and capture TTP information.
- d. Participants should use the worksheets to record their own ideas and insights regarding suitable TTP.

Organization. This package is divided into two sections:

- Section 1 is a completed example of the worksheets. Review the examples prior to conducting an exercise so all Soldiers are familiar with the worksheets and the steps involved.
- Section 2 contains the blank worksheets the Soldiers will complete.

Section 1

Step 1: Develop TTPs (written statement)

- Record the mode and number of times the exercise was performed
- Record the METT-TC conditions planned for the exercise
- Conduct a Table Top (TT), Simulation, or Live exercise
- Brainstorm individually and write ideas on the TTP Brainstorming Notes Worksheet

EXAMPLE

TTP Brainstorming Notes Worksheet

NOTE: Record the following information each time you conduct an exercise.

Mode: (check one) TT [X], Sim [], Live [] **Rating(1-100)** 80

Number of times exercise was performed: [1]

Mission: Movement to Contact

Enemy: Mech CO. Force Ratio 3 to 1

Terrain and Weather: Desert Rolling, daytime and clear

Troops and Support Available: No Factor

Time: Deliberate

Civil Considerations: None

Use the space provided to record all ideas generated during brainstorming. Effective brainstorming involves:

- a) Having every member generate their own ideas
- b) Recording all ideas without judgment
- c) Generating/creating unique solutions
- d) Encouraging contributions by all members
- e) Identifying ideas that can be combined
- f) Reviewing, vetting, and prioritizing ideas

NOTE: Good TTP statements include “who,” “what,” “where,” “how,” and “why” (rationale). Example:

Each platoon will conduct a movement to contact with their vehicles in WEDGE formation.

Each platoon will fly its UAV at 1000 ft and above the formation.

(Why? – The formation provides maximum firepower forward while leaving a force able to react to either flank. The UAV position provides long range coverage.)

Step 2A: Review ideas from brainstorming session

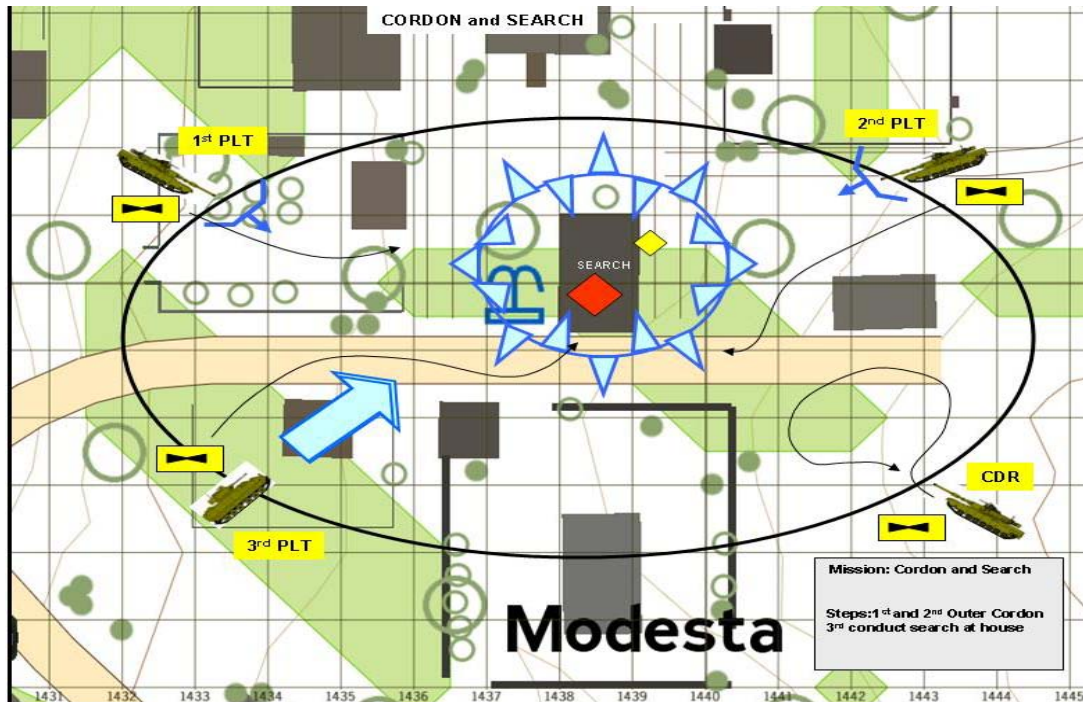
- As a group, review the ideas on the TTP Brainstorming Notes Worksheets
- Decide which items to **Keep** as is, which items to **Modify**, and which items to **Delete**
- Once consensus is reached, sketch the draft TTPs and write a summary on the TTP Summary and Graphic Worksheet
- Go back and rate the quality of the TTPs you generated on a scale from 1-100

Step 2B: Develop TTPs in graphic form

EXAMPLE

TTP Summary and Graphic Worksheet

NOTE: Use the space below to sketch a TTP for placing and moving equipment and personnel. On electronic forms you may click and drag objects. If hand written, you may want to use local symbols or abbreviations (e.g., "B" for Bradley).



TTP SUMMARY:

A/1-67 Armor, 1CD conducts MTC with 4 organic unmanned aerial vehicles (FCS Spin Out Micro Air UAV) in sector. The company will deploy one UAV from the trail platoon. It will fly directly above the formation at 500ft AGL. All others will remain in reserve. The UAV will be the primary means to make initial contact with the enemy. After contact it will be recovered to prevent destruction from direct fire. (Why? - This will enable the company to gain visual contact first while maintaining security in case the enemy is able to gain the element of surprise.)

Step 3: Vet and improve TTPs

- Employ your graphic and written TTP in the next exercise
- Use the AAR to refine your TTPs (Keep, Modify, Delete)
- Continue this process until the leader is satisfied with the TTPs
- When the leader is satisfied with the TTPs, compile the TTP Summary and Graphic Worksheets and note which are global vs. specific

Section 2

The following blank forms will be used during the exercises to record ideas and develop/revise TTPs:

- TTP Brainstorming Notes Worksheet
- TTP Summary and Graphic Worksheet

NOTE: Several copies of the forms should be available to the facilitator, leader, and participants for use in multiple exercises. Use fresh copies as needed.

TTP Summary and Graphic Worksheet (Step 2B)

NOTE: *Use the space below to sketch TTP for placing and moving equipment and personnel. On electronic forms you may click and drag objects. If hand written, you may want to use local symbols or abbreviations (e.g., "B" for Bradley).*

A large, empty rectangular box with a thin black border, intended for sketching TTP (Tactical Threat Positioning) for placing and moving equipment and personnel.

TTP SUMMARY: *Use the space below to write a summary of your draft TTPs.*

A large, empty rectangular box with a thin black border, intended for writing a summary of the draft TTPs.

Appendix B-B-3

TTP CONDITIONS AND RESULTS SUMMARY WORKSHEET

Purpose: To facilitate the approval process by providing the higher commander a summary of the METT-TC conditions and results from each exercise.

Instructions: Using information from the *TTP Summary and Graphic Worksheet*, along with the *Brainstorming Notes Worksheet*, fill in each section with the corresponding METT-TC factors. You can select from the pull-down list or make your own entry.

EXERCISE	ENVIRONMENT	MISSION	ENEMY		TERRAIN/WEATHER			TROOPS AVAILABLE	TIME	CIVIL CONSIDER'NS	MISSION OUTCOME
			Type/Size	Force Ratio	Terrain	Weather	Visibility				
1	<i>Simulation</i>	<i>ATK</i>	<i>Mech Co</i>	<i>3 to 1</i>	<i>Desert Rolling</i>	<i>Clear</i>	<i>Unlimited</i>	<i>No Factor</i>	<i>Deliberate</i>	<i>No Factor</i>	<i>Success</i>

NOTE: For a digital version of this worksheet, use Excel file “B3_ST-TTP_Summary_WKS4D.xls”.

APPENDIX B-C

Example Tactical Materials

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Appendix B-C-1. Road to War	B-C-1-1
Appendix B-C-2. Road to War Overall Graphic	B-C-2-1
Appendix B-C-3. BASE OPORD Offensive Operations.....	B-C-3-1
Appendix B-C-4. Example Scenario Unit MTOE.....	B-C-4-1
Appendix B-C-5. FRAGO 2 Cordon and Search	B-C-5-1
Appendix B-C-6. Cordon and Search 3D Graphics.....	B-C-6-1
Appendix B-C-7. Cordon and Search 2D Graphics.....	B-C-7-1
Appendix B-C-8. FRAGO 3 Raid.....	B-C-8-1
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Appendix B-C-11. FRAGO 4 Screen	B-C-11-1
Appendix B-C-12. Screen 3D Graphics	B-C-12-1
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Appendix B-C-14. FRAGO 5 Movement to Contact	B-C-14-1
Appendix B-C-15. Movement to Contact 2D Graphics	B-C-15-1

ROAD TO WAR – SAHRANI REGION

KINGDOM OF SOUTH SAHRANI (KSS) / DEMOCRATIC REPUBLIC OF SAHRANI (DRS)

- The KINGDOM OF SOUTH SAHRANI is aware that it has emerged as the economic leader in the SAHRANI Region. This leadership position has been reinforced by its rapid military buildup and by growing assertiveness in its foreign policy and diplomacy. Through all means, the KINGDOM OF SOUTH SAHRANI seeks to establish itself politically as the dominant regional actor, capable of influencing regional neighbors (DEMOCRATIC REPUBLIC OF SAHRANI) and establishing de facto control over the continent and surrounding waters.
- The KINGDOM OF SOUTH SAHRANI encourages the replacement of the DEMOCRATIC REPUBLIC OF SAHRANI government by covertly sponsoring anti-government political groups and insurgents.
- The KINGDOM OF SOUTH SAHRANI views its emerging military capabilities to be symbolic of its emergence as a regional leader and global power. Military capability also underpins regime security, enhances the domestic stature of key political leaders like Regent Telemakhos, deters the West, and gives the KINGDOM OF SOUTH SAHRANI a growing potential to influence and coerce its neighbors.
- The KINGDOM OF SOUTH SAHRANI's desire to destabilize unfriendly neighbors and weaken the influence of western powers has led it to provide support to several regional and international terrorist groups.
- This support has grown over the years. Though the government openly denies its involvement with terrorist groups, support has grown to be large and diverse.
- Terrorist organizations have headquarters inside KINGDOM OF SOUTH SAHRANI, and KINGDOM OF SOUTH SAHRANI is known to permit several bases and training camps in the western part of the nation. Porous borders with DEMOCRATIC REPUBLIC OF SAHRANI allow terrorists to travel and transport arms throughout the region.

2007-2008

- The DEMOCRATIC REPUBLIC OF SAHRANI holds their first elections.
- The Freedom Party wins both the presidency and the parliamentary majority with a promise of engagement both regionally and internationally for a betterment of the country. This leads to harsh economic sanctions from the KINGDOM OF SOUTH SAHRANI on the DEMOCRATIC REPUBLIC OF SAHRANI. The KINGDOM OF SOUTH SAHRANI begins providing financial support to an anti-democratic insurgent group in the DEMOCRATIC REPUBLIC OF SAHRANI as a

means of undermining the government. The support from the KINGDOM OF SOUTH SAHRANI to these groups continues to grow in the coming years.

2011

- The KINGDOM OF SOUTH SAHRANI demands that DEMOCRATIC REPUBLIC OF SAHRANI give back lands (City of CORAZOL) along their joint border that once belonged to KINGDOM OF SOUTH SAHRANI before DEMOCRATIC REPUBLIC OF SAHRANI became a sovereign nation.
- A KINGDOM OF SOUTH SAHRANI defector reports that there is a new advanced ballistic missile that the KINGDOM OF SOUTH SAHRANI will soon test and that a secret nuclear program is advancing rapidly. This leads to calls from the UN Security Council for CBRNE inspections. The KINGDOM OF SOUTH SAHRANI refuses these inspections.

2012-2014

- The KINGDOM OF SOUTH SAHRANI involvement in the DEMOCRATIC REPUBLIC OF SAHRANI affairs continues to heighten. The KINGDOM OF SOUTH SAHRANI reveals to the world its ballistic missile capability with multiple successful tests. The KINGDOM OF SOUTH SAHRANI uses military training exercises to mask mobilization and the increased readiness posture of its military forces. Increased imports of ammunition, spare parts, is explained as necessary to sustain an intensified training program for its military forces.
- The KINGDOM OF SOUTH SAHRANI forces deploy beyond the DEMOCRATIC REPUBLIC OF SAHRANI border to take control of repatriated lands. They conduct an amphibious landing at the town of EVERON.
- The rapid deployment of the United States and the Coalition to the DEMOCRATIC REPUBLIC OF SAHRANI is the first introduction of Western forces since the 1950's. The KINGDOM OF SOUTH SAHRANI promotes the view that this is threatening and that its seizure of the border is, in essence, a defensive measure required for economic survival. It warns of escalation throughout the region, to include "defensive" attacks against APODs and SPODs in EVERON and BAJO VALOR and disruption of oil trade globally.

Other Regional Nations:

The nations and entities of the region, although always suspicious of the KINGDOM OF SOUTH SAHRANI motives, are now faced with a choice of regional or international alignment.

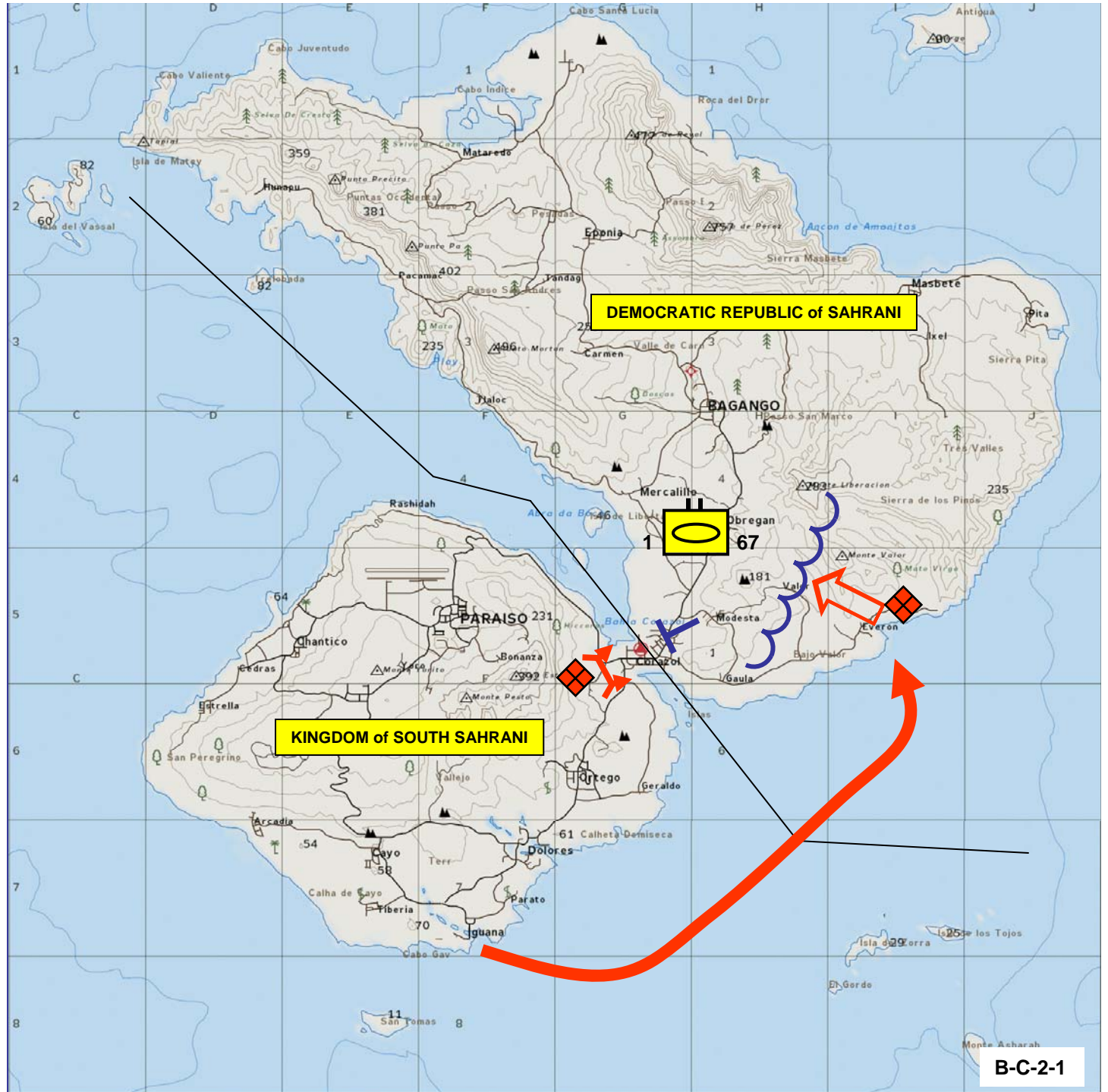
(1) **RAHMADI**. KINGDOM OF SOUTH SAHRANI's only true ally in the region, largely because of ethnic-religious affinities and trade relations, *RAHMADI* is governed by a tribal ruling elite with limited authority over most of the nation. The *RAHMADI* - KINGDOM OF SOUTH SAHRANI border is not contiguous with miles of ocean between

them. *RAHMADI*'s economic backwardness and history of internal instability prevent the government from supporting the KINGDOM OF SOUTH SAHRANI militarily, but public sympathies are strongly anti-Western. The majority of *RAHMADI*'s population is along the west coast; there are few urban areas adjacent to the KINGDOM OF SOUTH SAHRANI.

(2) **ANTIGUA**. ANTIGUA is committed to neutrality under any conditions, and will not permit any form of basing or over-flights by Coalition forces or by the KINGDOM OF SOUTH SAHRANI. Diplomatic attempts to engage either country by both sides have been met firmly with refusal to be engaged on any level.

Road To War Overall Graphic

ANNEX C TO ROAD TO WAR (OVERALL GRAPHIC)



EXAMPLE BASE OPORD

BASE OPORD OFFENSIVE OPERATIONS – Appendix C3

BATTALION OPORD FOR 1-67 Armor

Copy ____ of ____ copies
1-67 AR
BAGANGO
152200March2014

OPORD 05-10 (OPERATION ROAD WARRIOR)

References:

Map: Sahrani 1:40,000

Time Zone: Local

TASK ORGANIZATION:

1-67 AR

A/1-67 AR (M1A2)

B/1-67 AR (M1A2)

C/2-41 IN (M2A3)

D/2-41 IN (M2A3)

1. (U) SITUATION

1.A. (U) Enemy forces.

1.A.1. (U) Overview. The Kingdom of South Sahrani has an organization comprised of combined arms battalions that have a tank company and an infantry company organic to them. The battalion will have a battery of 2S3 in direct support. The tank company has organic reconnaissance assets that conduct all reconnaissance for the battalion. The infantry company has a section of D-20 howitzers for direct support. The T-72s of the tank company are at 75% strength and parts are hard to obtain. There is however no shortage of ammunition for the artillery systems. There may be small groups of tanks borrowed from sympathetic neighbors but they will be hard to maintain. Every level of the organization is equipped with a large compliment of RPG systems. They have larger anti-tank systems that are equivalent to our systems. Our main threat will be from the South Sahrani Guerrilla Forces (SSGF) and criminal groups that are in allegiance with the Kingdom of South Sahrani government. They are fighting on their home turf and will be difficult to spot. They will use every means at their disposal to kill, wound, and disrupt our soldiers.

1.A.2. (U) Composition. See above.

1.A.3. (U) Disposition. Currently we are tracking a group of Kingdom of South Sahrani Forces in both the town of EVERON and along the southern coast. We believe the group in the foothills is preparing for further border crossing with an attempt at taking the Democratic Republic of Sahrani International Airport (IIA). All other activity so far has been with the insurgent forces.

1.A.4. (U) Enemy Most Probable Course of Action. The most probable course of action for the Kingdom of South Sahrani Forces will be to maintain what they have taken so far and allow public opinion in the rest of the region to see their side of the conflict in a better light. The insurgents will continue to harass anyone that opposes them.

1.A.4.A. (U) Obstacles. There are no known manmade obstacles in zone at this time. Some built up areas have the potential of being used as obstacles with minimal effort from the opposition.

1.A.4.B. (U) Chemical. The enemy has the capability of using industrial chemicals; however he has not yet employed chemical weapons and is not expected due to their desire to exploit the environmental resources in BAGANGO.

1.A.4.C. (U) Air. The enemy has the capability of mounting a very limited number of sorties of MI-8 HIP helicopters. Expect enemy air to focus on HVT's in our Support Zone or used in conjunction with the Counter Attack Force.

1.A.4.D. (U) Reserve. N/A

1.A.4.E. (U) Electronic War. The enemy has limited capability to jam friendly forces. However they can jam Single Channel frequencies.

EXAMPLE BASE OPORD

1.A.5. (U) Enemy Most Dangerous Course of Action. The most dangerous course of action is for the local populace to agree to assist the insurgents and the Kingdom of South Sahrani forces to gain control of the Democratic Republic of Sahrani International Airport and river crossing sites.

1.A. (U) Friendly Forces.

1.A.1. (U) Coalition Commander's Intent. We must push all Kingdom of South Sahrani Forces back across the border or destroy them in place. We cannot allow the insurgent forces to influence our fight with the national forces. Due to limited sustainment capabilities in the Kingdom of South Sahrani Forces we must move swiftly to reestablish the border.

1.A.2. (U)

1.B. (U) Physical Environment.

1.B.1. (U) Weather. Overall weather favors friendly forces by increasing the effectiveness of thermal acquisition sights, rate of march during movement, and employment of close rotary and fixed wing air support.

1.B.2. (U) Visibility. Overall visibility will be excellent during daylight operations. Expected precipitation will reduce dust clouds emitted by tracked and wheeled platforms. During limited visibility operations there will be approximately 50% illumination. This will enhance the effectiveness of passive night vision systems in the event operations continue into hours of visibility.

1.B.3. (U) Winds. Winds will favor our maneuver from East to West. Winds 10-15 mph from the NE. This will favor the employment of friendly smoke to mask our movement from enemy observation. Additionally it will hamper enemy efforts to use chemical weapons since the wind direction will force the enemy to fight in a chemical environment.

1.B.4. (U) Precipitation. Overall favors friendly forces. There is an 80% chance of light rain. This will assist in reducing dust trails from our tanks making it harder for the enemy to identify our movement. Additionally, while the precipitation is not expected to slow our movement, large downpours could render some wadies un-crossable except at ford sites which could canalize and slow our movement. Precipitation may also cause false returns on LRFs. Ensure battle sights are set to 1200m. Long periods of precipitation will also increase danger of cold/wet weather injuries to soldiers effectively reducing their motivation and responsiveness.

1.B.5. (U) Humidity and Temperature. Temperatures favor neither friendly nor enemy forces. Temps range from 60°F at night to over 100°F during the day. High temps during the day will make thermal detection of enemy forces more difficult. Low temps at night will aid the use of thermal night vision devices. The variations in temperatures may also cause an increased number of weather related casualties. High humidity during this operation may cause the formation of morning fog in our area of operations.

1.B.6. (U) Cloud Cover. Cloud Cover favors friendly forces. Clouds will be intermittent with a 10,000 ft ceiling. This will favor the friendly employment of close air support, UAV, and attack aviation. The enemy will also be able to conduct operations with its limited aviation assets.

1.B.7. (U) Terrain. Overall terrain favors neither force.

1.B.8. (U) Obstacles. In our zone, there is one significant obstacle (river) that will slow down our movement.

1.B.9. (U) Avenues of Approach. There are multiple avenues of approach.

1.B.10. (U) Key Terrain. The most important key terrain in the area is the river ford site in the western sector.

1.B.11. (U) Observations and Fields of Fire. Observation and fields of fire are excellent throughout the AO and are only limited by IV lines. Observation of Dust Clouds is 20 (+) km in dry conditions, and 3-5 km in wet conditions, and engagement ranges exceed the maximum effective range of direct fire weapon systems. Forces must ensure not to limit fields of fire by being below IV lines.

1.B.12. (U) Cover and Concealment. Cover and Concealment in the area of operations is generally poor. The numerous IV lines and wadies provide some concealment during movement. There is little concealment due to the lack of large vegetation except at the river. An attacker must use IV lines to close with the ENY without exposing himself.

1.C. (U) Civil Considerations. Crowds can become angry and violent if provoked.

1.D. (U) Attachments and Detachments. None

1.E. (U) Assumptions:

1.E.1. The Kingdom of South Sahrani Forces will not launch ballistic missiles at coalition forces.

1.E.2. There will be no mass mobilization of the Kingdom of South Sahrani Forces in the area of operation.

EXAMPLE BASE OPOD

- 1.E.3. No other country will enter into combat with coalition forces.
2. **(U) MISSION.** 1-67 Armor conducts combat operations in zone NLT 180530MAR2010 to clear the ANF and AGF from the inter-border zone and the Democratic Republic of Sahrani International Airport (AIA) and reestablish the international border.
3. **EXECUTION.**
- 3.A. **(U) Commander's Intent:** My intent is to move through sector protecting our formations from insurgents until we contact the main Kingdom of South Sahrani Forces (KSSF). Once contact is made we will utilize all assets in the battalion to clear KSSF from the border area, reestablishes the border, and stop any further penetrations of the border.
- 3.A.1. **(U) Purpose:** The purpose of this operation is reestablishment of the northern border and ejection of any INF from ELIS.
- 3.A.2. **(U) Key Tasks:**
1. Identification and destruction of insurgent strongholds.
 2. Reestablishment of the international border.
 3. Establishment of forward operating base in SAHRANI.
- 3.A.3. **(U) End State:** The end state of this operation is the destruction of the enemy/insurgents in zone; the battalion set at the SAHRANI International Airport (IIA) at 90% strength and prepared to attack to destroy enemy penetrations of the border.
- 3.B. **(U) Concept of the Operation.** 1-67 Armor conducts a tactical roadmarch from its current positions to FOB CORAZOL. The companies LD NLT 180530MAR2010. Upon insurgent contact, the company in contact will maneuver to destroy the insurgents or establish an attack by fire position in order to destroy the insurgents. The task force will continue its movement to FOB CORAZOL. When all insurgents have been cleared of the area the company in contact will conduct a MTC to FOB CORAZOL. O/O the task force will continue its movement north conducting reconnaissance in preparation for crossing the river and conducting a movement to contact.
- 3.B.1. **(U) Movement and Maneuver.**
- 3.B.1.A. **(U) Mobility and Countermobility.**
- 3.B.1.B. **(U) Battlefield Obscuration**
- 3.B.2. **(U) Fires.** 4-42 FA fires in support of the task force. The purpose of indirect fires is to disrupt and fix enemy forces in order to allow the task force to maneuver and destroy them. The purpose of mortar fires is for immediate suppression.
- 3.B.2.A. **(U) Field Artillery Support:**
- 3.B.2.B. **(U) Air Support:** TBD
- 3.B.2.C. **(U) Naval Surface Fire Support:** None
- 3.B.2.D. **(U) Command and Control Warfare:**
- 3.B.2.E. **(U) Priorities of Fire.** Priority of Fires by phase is as follows:
Phase I: A/1-67 AR (M1A2)
Phase II: A/1-67 AR (M1A2)
Phase III: A/1-67 AR (M1A2)
Phase IV: A/1-67 AR (M1A2)
Phase V: A/1-67 AR (M1A2)
- 3.B.3. **(U) Intelligence:**
- 3.B.4. **(U) Protection:**
- 3.C. **Tasks to Subordinate Units.**
- 3.C.1. **Alpha Company 1-67 Armor.**
1. Conduct a tactical roadmarch along Highway 3 from current positions to FOB CORAZOL as the main effort of the Task Force.
 2. Conduct security patrols around the Company slice of FOB CORAZOL upon arrival.
 3. BP to conduct further operations south to the Border.
- 3.C.2. **Team Bravo 1-67 Armor.**
1. Conduct a tactical roadmarch along Highway 3 from current positions to FOB CORAZOL as the supporting effort of the Task Force.

EXAMPLE BASE OPORD

2. Conduct security patrols around the Company slice of FOB CORAZOL upon arrival.
3. BP to conduct further operations south to the Border.

3.C.3. Team Charlie 1-67 Armor

1. Conduct a tactical roadmarch behind TM B along Highway 3 from current positions to FOB CORAZOL.
2. Conduct security patrols around the Company slice of FOB CORAZOL upon arrival.
3. BP to conduct further operations south to the Border.

3.C.4. Delta Company 1-67 Armor

1. Conduct a tactical roadmarch behind TM C along Highway 3 from current positions to FOB CORAZOL.
2. Conduct security patrols around the Company slice of FOB CORAZOL upon arrival.
3. BP to conduct further operations south to the Border.

3.D. Coordinating Instructions.

3.D.1. (U) Time: OPORD is effective upon receipt.

3.D.2. (U) CCIR.

Priority Intelligence Requirements (PIR).

3.D.2.A.1.A. What is the location and composition of the insurgent strongholds?

3.D.2.A.1.B. What is the location and composition of the SAHRANI Forces?

3.D.2.A.1.C. What is the location of the SAHRANI armor?

3.D.2.A.1.D. What are the locations for enemy observation posts?

3.D.3. (U) EEFI.

3.D.4. (U) Rules of Engagement: Priority of engagement for hostile targets is Tanks, BMPs, any AT system, and dismounted riflemen. All uniformed personnel are deemed hostile combatants. Any person(s) attacking US uniformed forces are deemed hostile combatants. Minimize civilian collateral damage. No indirect fires (HE & DPICM) in civilian occupied areas. Uniformed personnel are not authorized to enter religious sites. Displaced persons and Refugees (DPRE) will be directed to refugee collection center (Co-located with the CTCP).

3.D.5. (U) Information Engagement. TBD

3.D.6. (U) Fire Support Control Measures. TBD

3.D.7. (U) Airspace Control Measures. TBD

3.D.8. (U) Risk Reduction Control Measures. TBD

3.D.9. (U) Personnel Recovery Coordination Measures. TBD

3.D.10. (U) Environmental Considerations: TBD

3.D.11. (U) Other Coordinating Instructions:

4. SERVICE & SUPPORT.

4.A. CONCEPT OF SUPPORT: HHC/1-67 AR provides tactical and administrative logistics support during the operation. Initially the TFSA & CTCP support from the FOB. All LOGPAC assets will fall under the control of Bandit 7. Priority of Maintenance in the Battalion during this operation is M1A2's, M2A3's, STRYKERS, BFIST, then light tracks and wheels.

4.A.1. BEFORE: All Companies/TMs will be 100% on CL III & CL III(P) & CL V UBL prior to SP. The TFSA, CTCP & UMCP establish vic the FOB and support the TF there. Routine re-supply will be conducted through twice daily LOGSTAT reporting.

EXAMPLE BASE OPORD

4.A.2. DURING: The company trains will remain 1 graphic control measure behind the lead company at all times. The company will retain one M978 Fueller in its trains for fuel re-supply during Phase III & IV. Emergency CL III needed beyond that will be supported from the CTCP, process all calls for additional CL III/V through the 1SG. Units will deploy with CLS bags and kits on hand for their vehicles/platoon. Primary method of recovery will be company internal if in contact, out of contact the forward support company will move to and assess the vehicle. All Requests for recovery assets will be processed through Bandit 7 during operations. MEDEVAC frequency is 38.30, call sign "DUSTOFF". Casualties incurred during operations will be evacuated to the nearest checkpoint by the platoon. The Company trains will move to and collect any casualties that are incurred out of contact. Priority of Maintenance in the Company during this phase is remains Tanks, Bradleys, STRYKERS and Medics.

4.A.3. AFTER: Priority of maintenance will continue to be Tanks, Bradleys, STRYKERS and Medics. Bandit 7 will bring the trains to the center of OBJ FOX and establish a service station LOGPAC. Vehicles will move through for a 2 min splash of fuel and CL V upload.

4.B. Material and Services.

4.B.1. Supply.

4.B.1.A. Class I Ration Cycle: MMT. Maintain 3 DOS MREs.

4.B.1.B. 1 X M978 Fuel HEMMT moves with the company trains.

4.B.1.C. Additional Emergency Class III and V are located with CTCP.

4.B.1.D. Class IV. CTCP establishes a CL IV Point during Phase IV.

4.B.2. Services.

4.B.2.A. Evacuate KIAs with empty ammunition vehicles in LOGPAC; clear with CTCP.

4.B.3. Maintenance. UMCP is collocated with the CTCP in the FOB. Company maintenance assets will remain with the trains. If maintenance deadlines occur, the platoon leader will immediately assess the status of the vehicle (i.e. can BDAR be conducted to bring it to an MC status? Or is the vehicle NMC?) After assessing the vehicle, he will call Bandit 7 with a recommendation.

4.B.4. Medical Evacuation and Hospitalization. TF Aid Station sets with the CTCP in the FOB, then SBF BANDIT. Ground evacuation of KIA's will be through LOGPAC; clear all movement of KIA soldiers through CTCP. AIR EVAC not available until after Phase III. Ambulance Exchange Points (AXPs) will co-located on existing operational checkpoints.

5. COMMAND & SIGNAL.

5.A. COMMAND.

5.A.1. The Task Force Chain of Command is BN CDR, BN XO, BN S-3, Archangel 6, Crazyhorse 6, Dark Rider 6, Easy 6, then Havoc 6.

5.A.2. The TF Commander will move with Archangel, the BN S-3 will move with Crazyhorse.

5.A.3. The company CP will move with the trains throughout the operation.

5.A.4. Succession of Command: Bandit 6, Bandit 5, White 1, Red 1, Blue 1, Bandit 1 (FIST), Bandit 7

5.B. SIGNAL.

5.B.1. Call Signs: Fixed Call Signs are in effect.

Battalion Commander	Iron Knight 6	Company Commander	Bandit 6
Battalion XO	Iron Knight 5	Company XO	Bandit 5
Battalion CSM	Iron Knight 7	Company 1SG	Bandit 7
Battalion S-3	Iron Knight 3	1 st Platoon Leader	Red 1
HHC Commander	Havoc 6	2 nd Platoon Leader	White 1
A/1-67 AR CDR	Archangel 6	3 rd Platoon Leader	Blue 1
B/1-67 AR CDR	Crazyhorse 6	Company Medics	Witchdoctor
C/1-67 AR CDR	Dark Rider 6	Company Maintenance	Bandit 8
D/1-67 AR CDR	Easy 6	TF Mortar Platoon Leader	Thunder 1
		TF Scout Platoon Leader	Spectre 1

1.A.1. Company Frequencies:

EXAMPLE BASE OPORD

UNIT	FREQ
BN COMMAND	F485
CO COMMANDER	F518
1ST PLATOON	F520
2ND PLATOON	F522
3RD PLATOON	F524
MEDEVAC	38.30

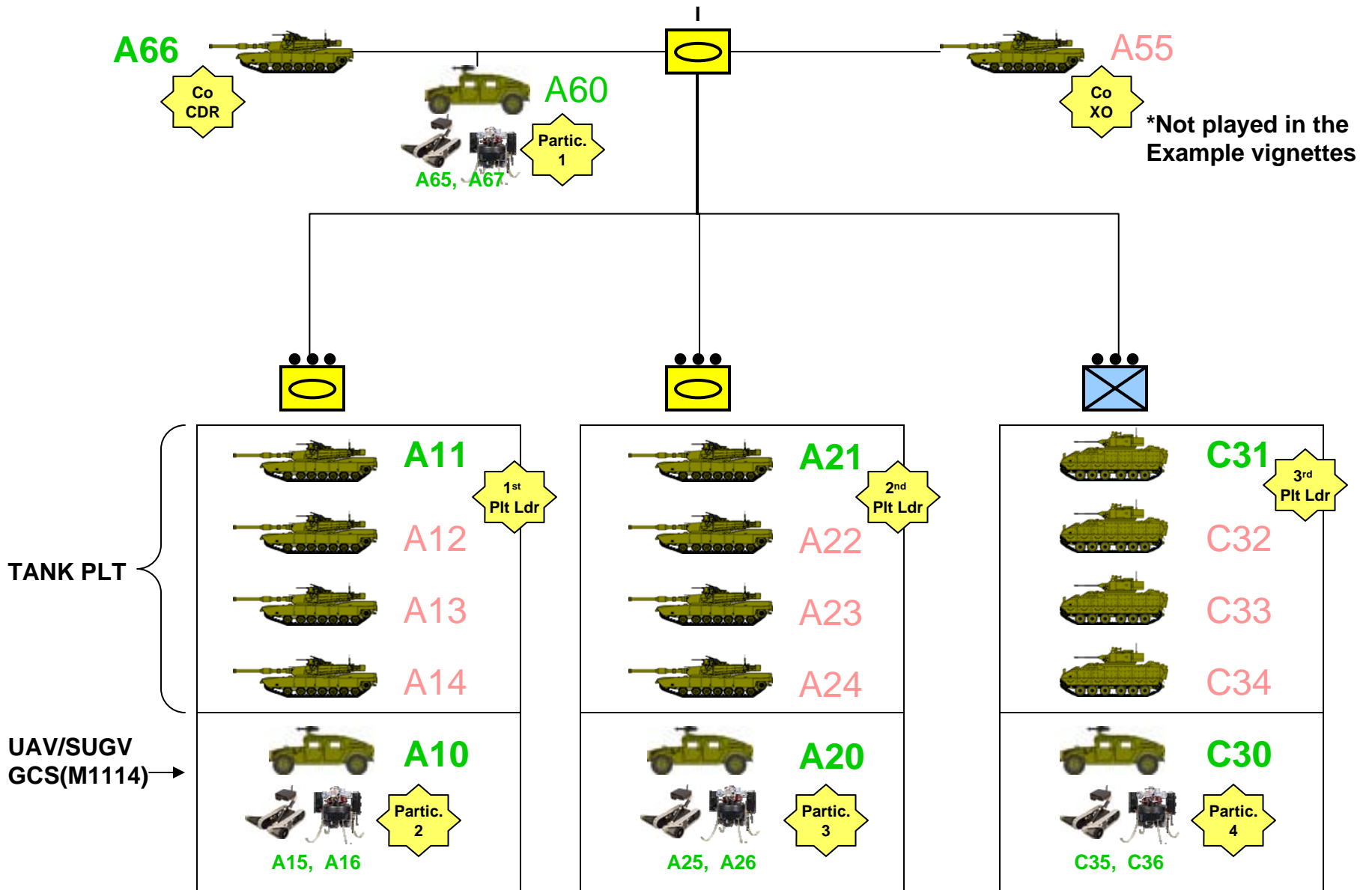
ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:

Copy ____ of ____ copies

Example Scenario Unit MTOE



Can be artificial intelligence (AI)

EXAMPLE UNIT MTOE

EXAMPLE FRAGO

FRAGO 2 CORDON AND SEARCH- Appendix C5

1-67 AR
MODESTSA
(14396900)
20 March 2010

FRAGO 02 (Vignette 2)

References:

Map: Sahrani 1:40,000

Task organization: TF 1-67 Armor

<u>TM A/1-67 AR</u>	<u>TM B/1-67 AR</u>	<u>TM C/2-41 IN</u>
1 st PLT (TK)	1 st PLT (TK)	1 st PLT (BFV)
2 nd PLT (TK)	2 nd PLT (TK)	2 nd PLT (BFV)
3 rd PLT (BFV-C Co)	3 rd PLT (BFV-D Co)	3 rd PLT (TK)
<u>TM D 2-41 IN</u>		
1 st PLT (BFV)		
2 nd PLT (BFV)		
3 rd PLT (TK-B Co)		

1. SITUATION.

Enemy Forces. Brigade intelligence assets indicate dismounted activity in the western section of the zone. Expect the OPFOR to put up a stiff resistance with dug-in dismounted infantry backed up by anti-armor weapon systems. This site has a clear shot on all rotary and fixed wing assets that transit the zone. They have previously shot down a Brigade unmanned aircraft system.

Friendly Forces. See task organization.

2. MISSION. TF 1-67 conducts area security operations NLT 220530MAR2010 to identify and destroy enemy/insurgent strongholds. O/O continues to SBF BANDIT.

3. EXECUTION.

Commander's Intent: I intend the companies to clear out insurgent strongholds in sector as we continue to move towards SBF BANDIT. I want you to maintain operational and situational awareness during the operation. Detain/capture insurgent forces when possible. Destroy any weapons/ammo

EXAMPLE FRAGO

caches in place. End state for the company is to deny the enemy the use of the crossroads at MODESTA.

Concept of the operation: I want each company to conduct detailed strikes at selected targets to eliminate caches, HVTs and safe houses to clear sector of insurgents. Limit collateral damage to areas around targets. Each company will maximize its ability to see and hit the enemy at its effective firing range.

Scheme of Maneuver. See overlay.

Tasks to maneuver units.

Team Alpha 1-67 Armor. TM A, 1-67 Armor conducts a cordon and search at 14388901 NLT 210530MAR2010 to prevent insurgents from launching attacks against civilians. O/O continues to conduct security operations.

Team Bravo 1-67 Armor. TM B, 1-67 Armor conducts a cordon and search at 15308940 NLT 210530MAR2010 to prevent units from launching against close air support aircraft.

Team Charlie 2-41 Infantry TM C, 1-67 Armor conducts a cordon and search at 134885 NLT 210530MAR2010 to prevent insurgents from launching attacks against civilians. O/O continues to conduct security operations.

Team Delta 2-41 Infantry. Maintains posture as the battalion quick reaction force.

Coordinating Instructions. See base order.

4. SERVICE & SUPPORT. See base order.

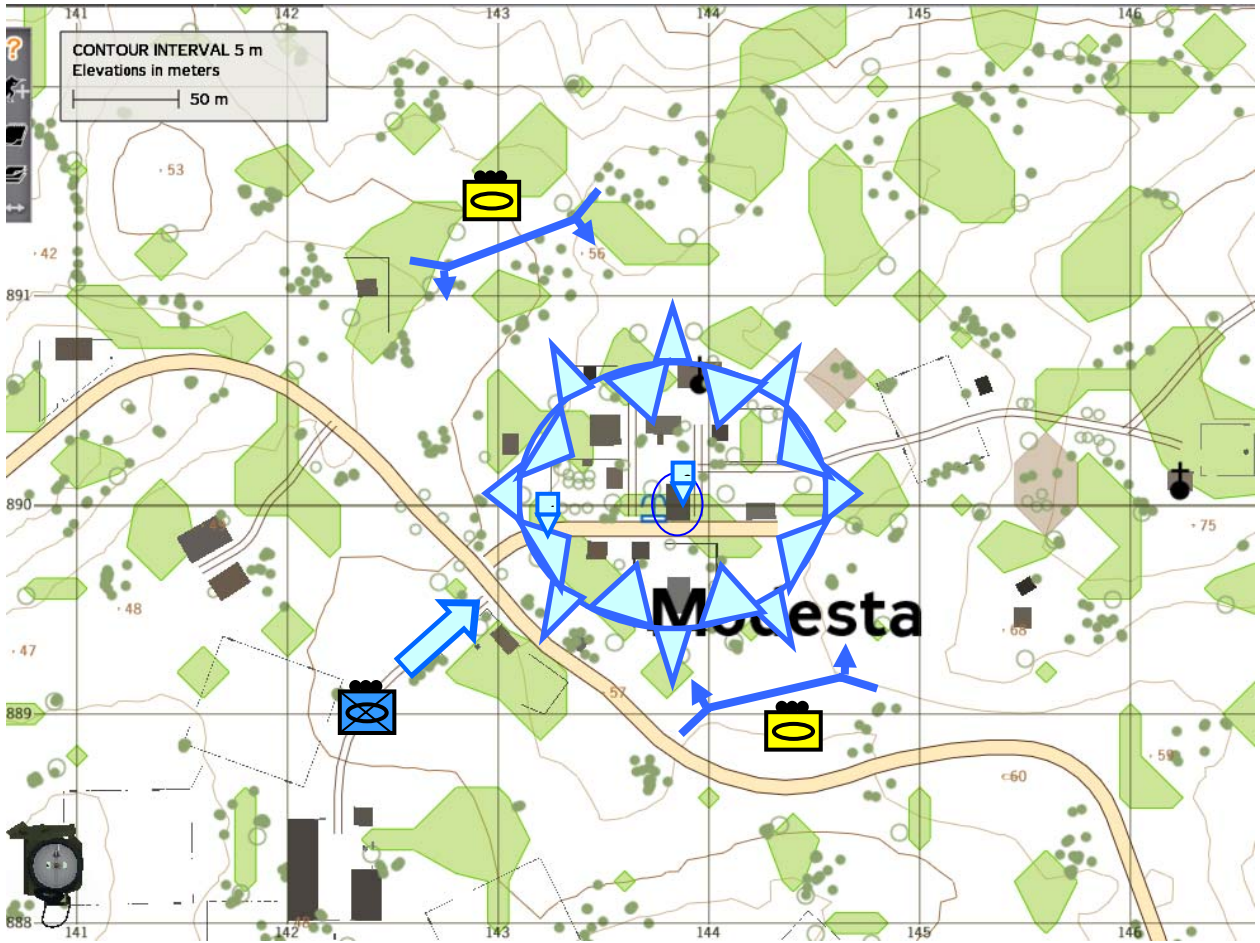
5. COMMAND & CONTROL. See base order.

ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:

EXAMPLE FRAGO



Cordon and Search

3D Graphics



B-C-6-1

APP 1 to ANNEX C to FRAGO 2 (Satellite View of AO) View 1



B-C-6-2

APP 1 to ANNEX C to FRAGO 2 (Satellite View of AO) View 2

APP 1 to ANNEX C to FRAGO 2 (Satellite View of AO) View 3



B-C-6-3



B-C-6-4

APP 1 to ANNEX C to FRAGO 2 (Satellite View of AO) View 4



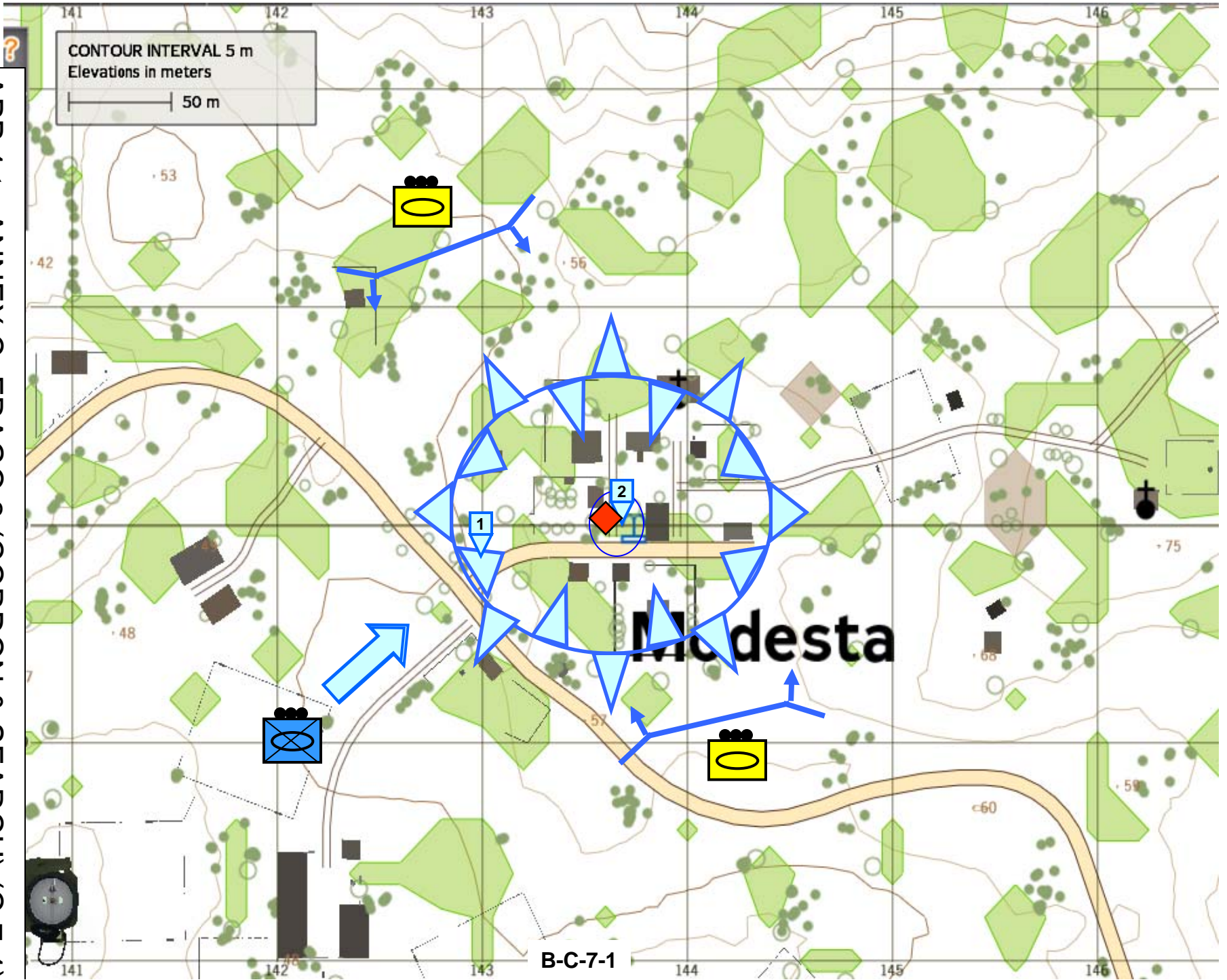
B-C-6-5

APP 1 to ANNEX C to FRAGO 2 (Satellite View of AO) View 5

Cordon and Search

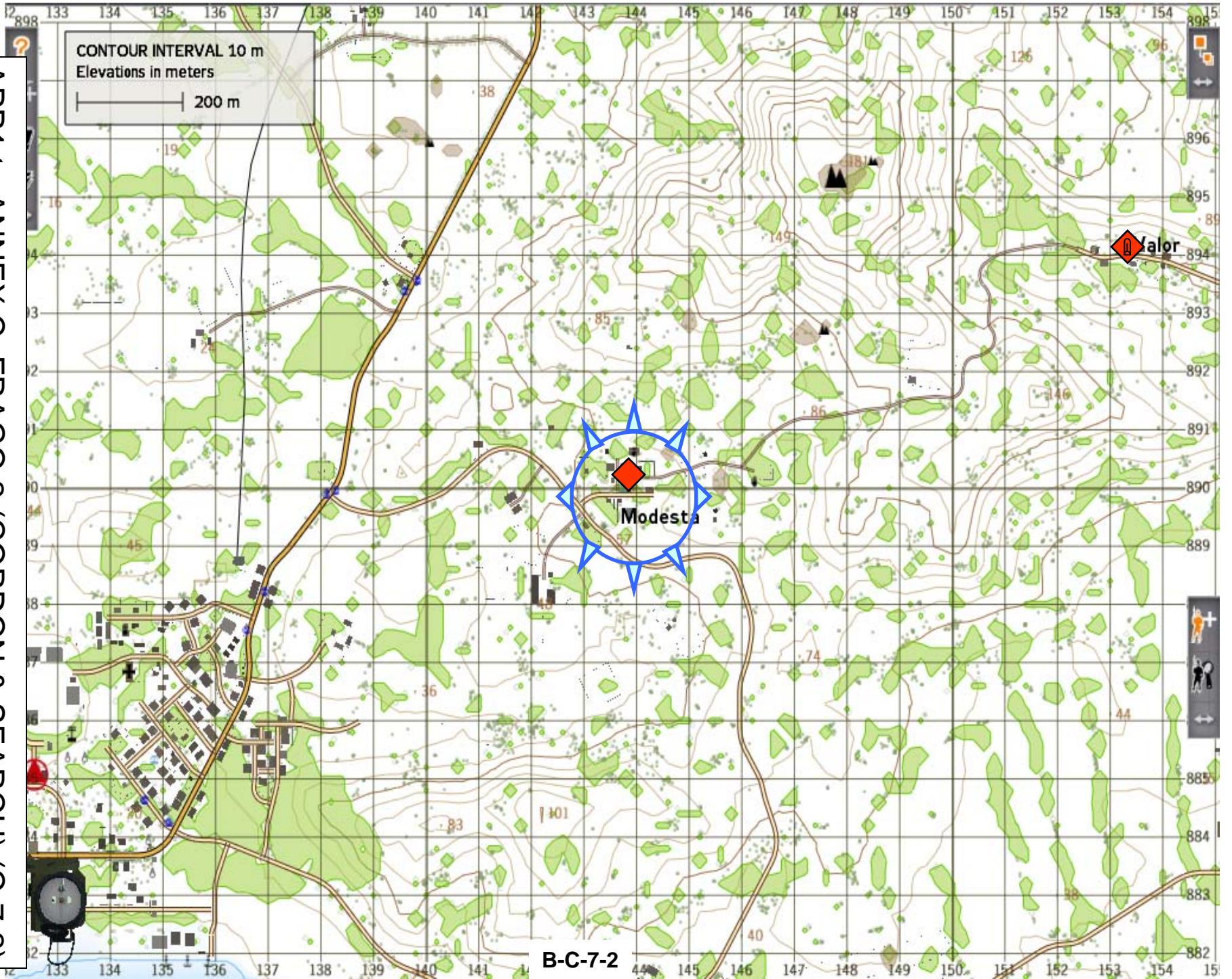
2D Graphics

APP 1 to ANNEX C, FRAGO 2 (CORDON & SEARCH) (C-7-1)



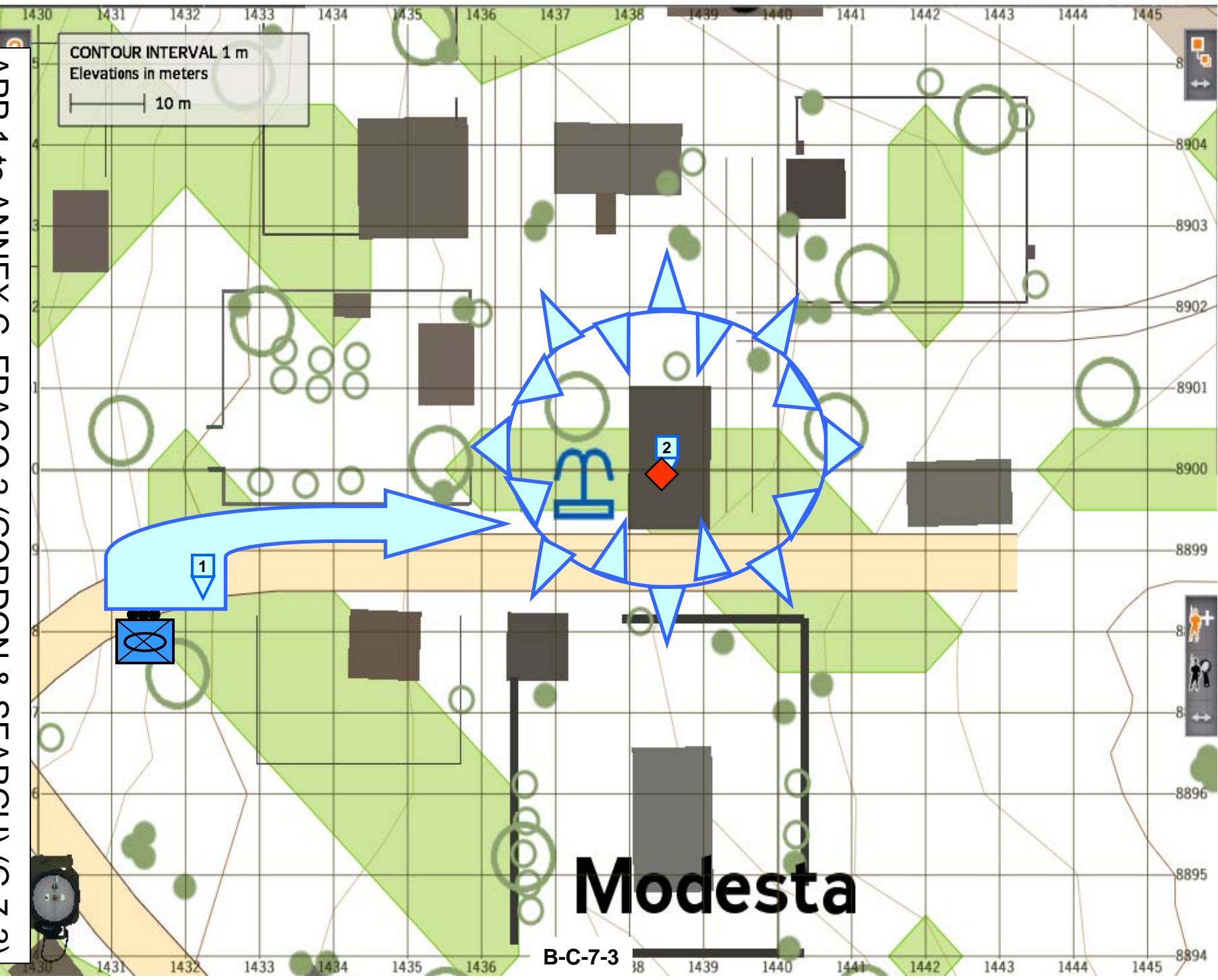
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APP1 to ANNEX C, FRAGO 2 (CORDON & SEARCH) (C-7-2)



APP 1 to ANNEX C, FRAGO 2 (CORDON & SEARCH) (C-7-3)

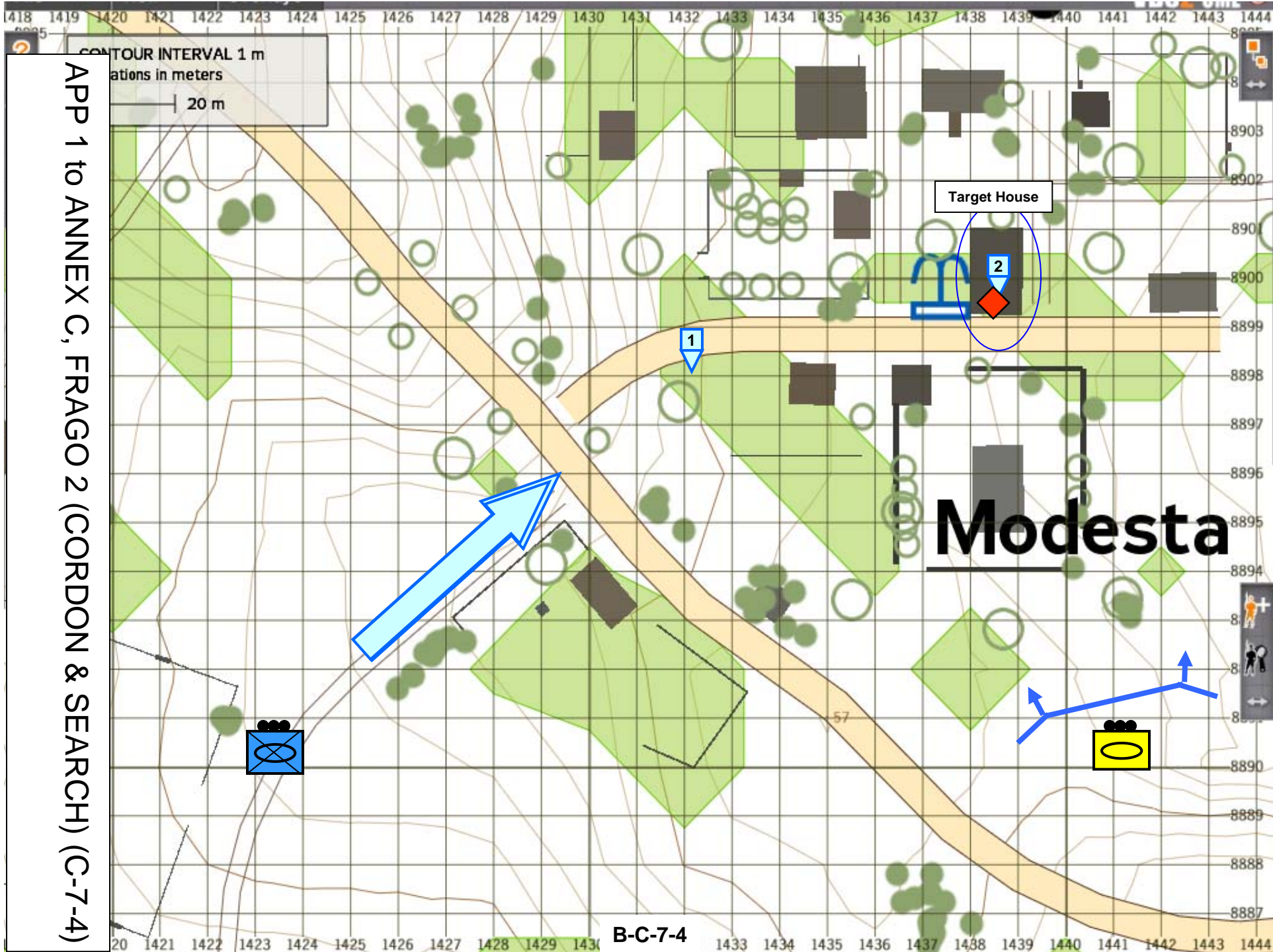
CONTOUR INTERVAL 1 m
Elevations in meters
10 m



Modesta

B-C-7-3

A vertical column of map navigation controls on the right side of the map. From top to bottom, it includes a zoom in/out icon, a pan icon, a layer selection icon, a search icon, a compass icon, and a scale bar icon.



EXAMPLE FRAGO

FRAGO 3 RAID – Appendix C8

1-67 AR
VALOR
(15338942)
21 March 2010

FRAGO 03 (Vignette 3)

References:

Map: Sahrani 1:40,000

Task organization: TF 1-67 Armor

<u>TM A/1-67 AR</u>	<u>TM B/1-67 AR</u>	<u>TM C/2-41 IN</u>
1 st PLT (TK)	1 st PLT (TK)	1 st PLT (BFV)
2 nd PLT (TK)	2 nd PLT (TK)	2 nd PLT (BFV)
3 rd PLT (BFV-C Co)	3 rd PLT (BFV-D Co)	3 rd PLT (TK)
<u>TM D/2-41 IN</u>		
1 st PLT (BFV)		
2 nd PLT (BFV)		
3 rd PLT (TK-B Co)		

1. SITUATION.

Enemy Forces. Reconnaissance indicates insurgent activity in the town of VALOR. Expect insurgents to conduct ambushes tied to choke points (urban). Brigade intelligence has evidence that weapons caches in the objective area contain artillery systems and ammunition. They may be prepared for demolition if they believe they will fall into our hands.

Friendly Forces. See task organization.

2. MISSION. TF 1-67 conducts area security operations in sector NLT 220530MAR2010 to reestablish order. O/O continues offensive operations west toward the coast.

3. EXECUTION.

Commander's Intent: The battalion will conduct security operations across the AO to seize on the opportunity to destroy weapons caches before they can be used against us. Our ISR efforts have indicated there are several caches in our AO. We will coordinate all efforts at the battalion CP. Endstate is to search for and destroy all OPFOR personnel in the village of VALOR. The town lies in a choke point and is vital to moving supplies through sector.

EXAMPLE FRAGO

Concept of the operation: Companies will aggressively conduct separate security missions to deny the enemy any movement within the sector. Each company will maximize its ability to see the enemy at its effective firing range.

Scheme of Maneuver. See overlay.

Tasks to maneuver units.

Team Alpha 1-67 Armor. TM A/1-67 AR conducts a raid NLT220530MAR2010 to clear all buildings on OBJ WOLF (suspected weapons cache in two buildings). Report all enemy activity in the town. Maximize the use of reconnaissance to pinpoint enemy activity in the built-up area. Do not allow enemy personnel to escape to the south or west.

Team Bravo 1-67 Armor. TM B/1-67 AR conducts checkpoint operations in sector NLT220530MAR2010 to stop insurgent violence against civilians.

Team Charlie 2-41 Infantry. TM C/1-67 AR conducts route security operations in sector NLT220530MAR2010 to stop insurgent violence against civilians.

Delta Company 2-41 Infantry. TM D is the counterattack/reaction force for the battalion and will operate out of AA TM D.

Coordinating Instructions. See base order.

4. SERVICE & SUPPORT. See base order.

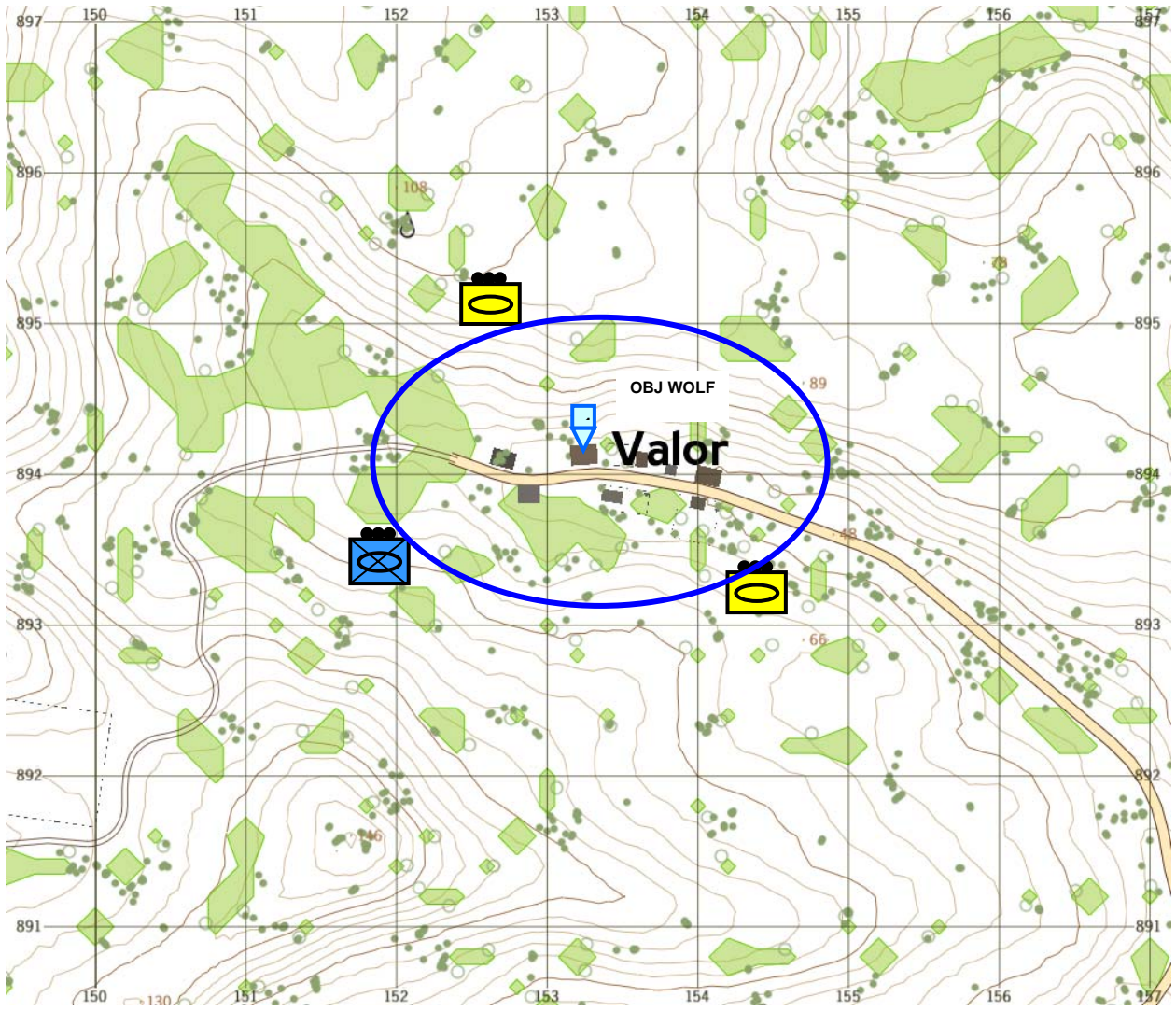
5. COMMAND & CONTROL. See base order.

ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:

EXAMPLE FRAGO



Raid 3D Graphics



B-C-9-1

FRAGO 3 (Satellite View of AO) View 1



B-C-9-2

FRAGO 3 (Satellite View of AO) View 2



B-C-9-3

FRAGO 3 (Satellite View of AO) View 3

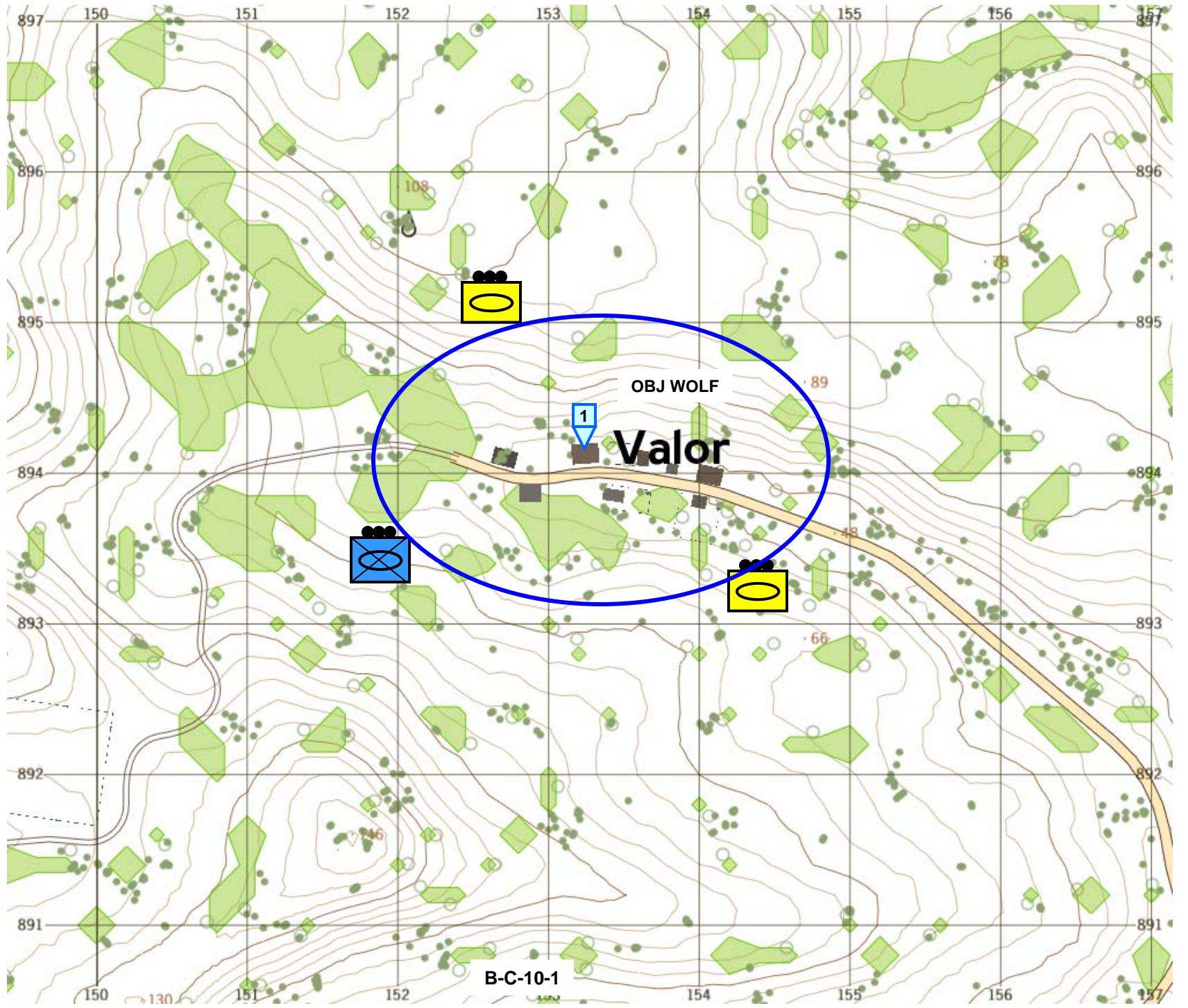


B-C-9-4

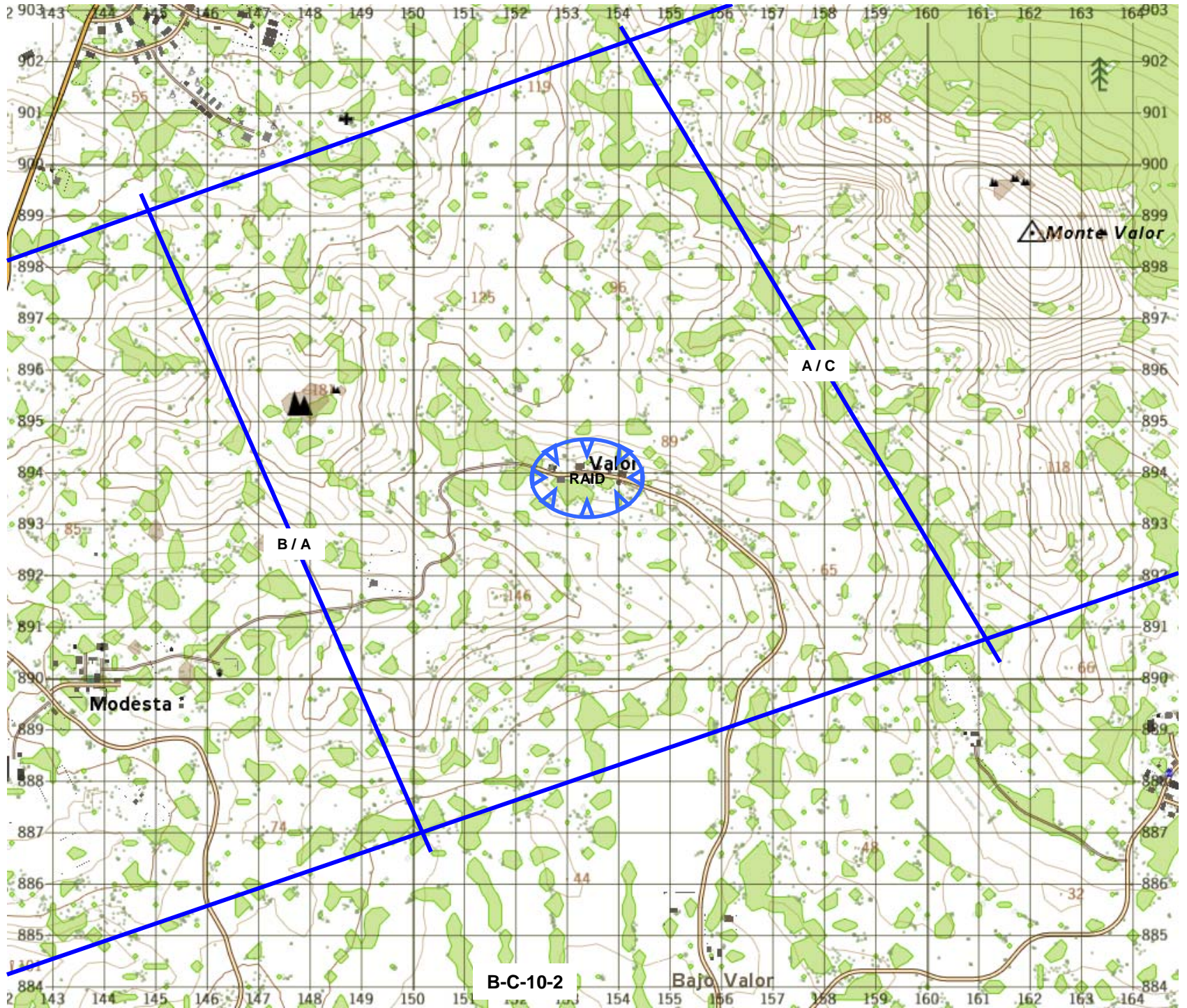
FRAGO 3 (Satellite View of AO) View 4

Raid 2D Graphics

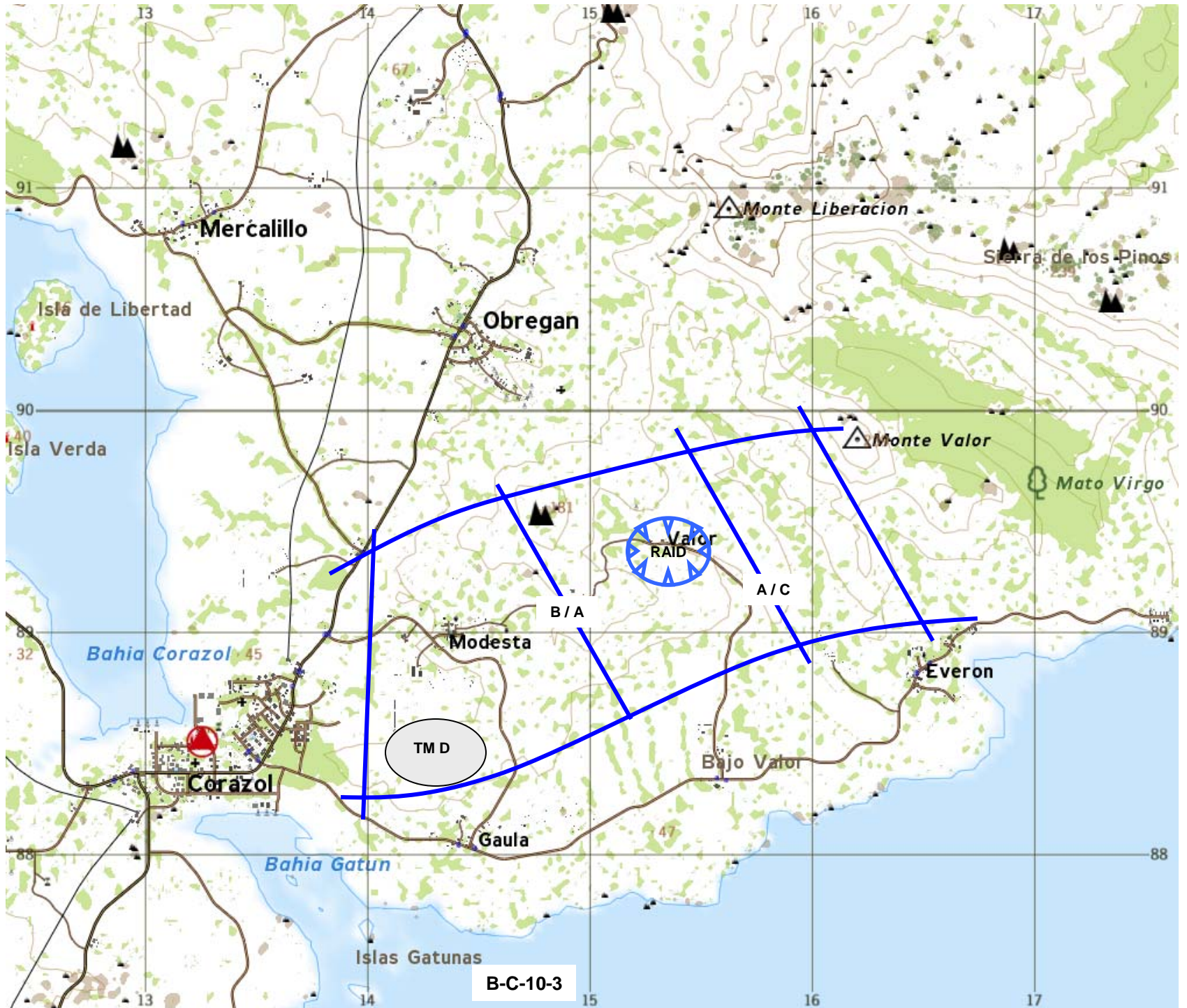
FRAGO 3 (RAID) (C-10-1)



FRAGO 3 (RAID) (C-10-2)



FRAGO 3 (RAID) (C-10-3)



EXAMPLE FRAGO

FRAGO 4 SCREEN– Appendix C11

1-67 AR
EVERON/VALOR
(156889)
22 March 2010

FRAGO 04 (Vignette 4)

References:

Map: Sahrani 1:40,000

Task organization: TF 1-67 AR Armor

<u>TM A/1-67 AR</u>	<u>TM B/1-67 AR</u>	<u>TM C/2-41 IN</u>
1 st PLT (TK)	1 st PLT (TK)	1 st PLT (BFV)
2 nd PLT (TK)	2 nd PLT (TK)	2 nd PLT (BFV)
3 rd PLT (BFV-C Co)	3 rd PLT (BFV-D Co)	3 rd PLT (TK)
<u>TM D/2-41 IN</u>		
1 st PLT (BFV)		
2 nd PLT (BFV)		
3 rd PLT (TK-B Co)		

1. SITUATION.

Enemy Forces. We have lost our intelligence assets in the area. There is a possible staging area for PARAIISO National Forces to the west of our zone. If they see us preparing to move south to the PARAIISO International Airport (AIA) they will try to attack into our flank. This is the first time we will have seen armored/mechanized forces opposing us.

Friendly Forces. See task organization.

2. MISSION. TF 1-67 conducts a movement to contact from current positions to the PARAIISO International Airport NLT230600MAR2010 to prepare for the establishment of a FOB in CARAZOL.

3. EXECUTION.

Commander's Intent: I intend for TM A to protect the right flank of the battalion as the rest of the units prepare to screen. TM A will move into BP1, orient on the south of the sector and engage any forces at maximum range.

Concept of the operation: Each company will maximize its ability to see the enemy at its effective firing range.

EXAMPLE FRAGO

Scheme of Maneuver. See overlay.

Tasks to maneuver units.

TM Alpha 1-67 AR. TM A, 1-67 AR conducts a screen NLT230530MAR2010 from BP1 oriented at the southeastern edge of our zone protecting the right flank of the battalion.

TM Bravo 1-67 AR. TM B Company, 1-67 AR conducts a screen NLT230530MAR2010 from BP 2 oriented at the northeastern edge of our zone protecting the left flank of the battalion.

TM Charlie 2-41 IN. Prepare to counterattack any threat in the northern part of the sector.

TM Delta 2-41 IN. Prepare to counterattack any threat in the southern part of the sector.

Coordinating Instructions. See base order.

4. SERVICE & SUPPORT. See base order.

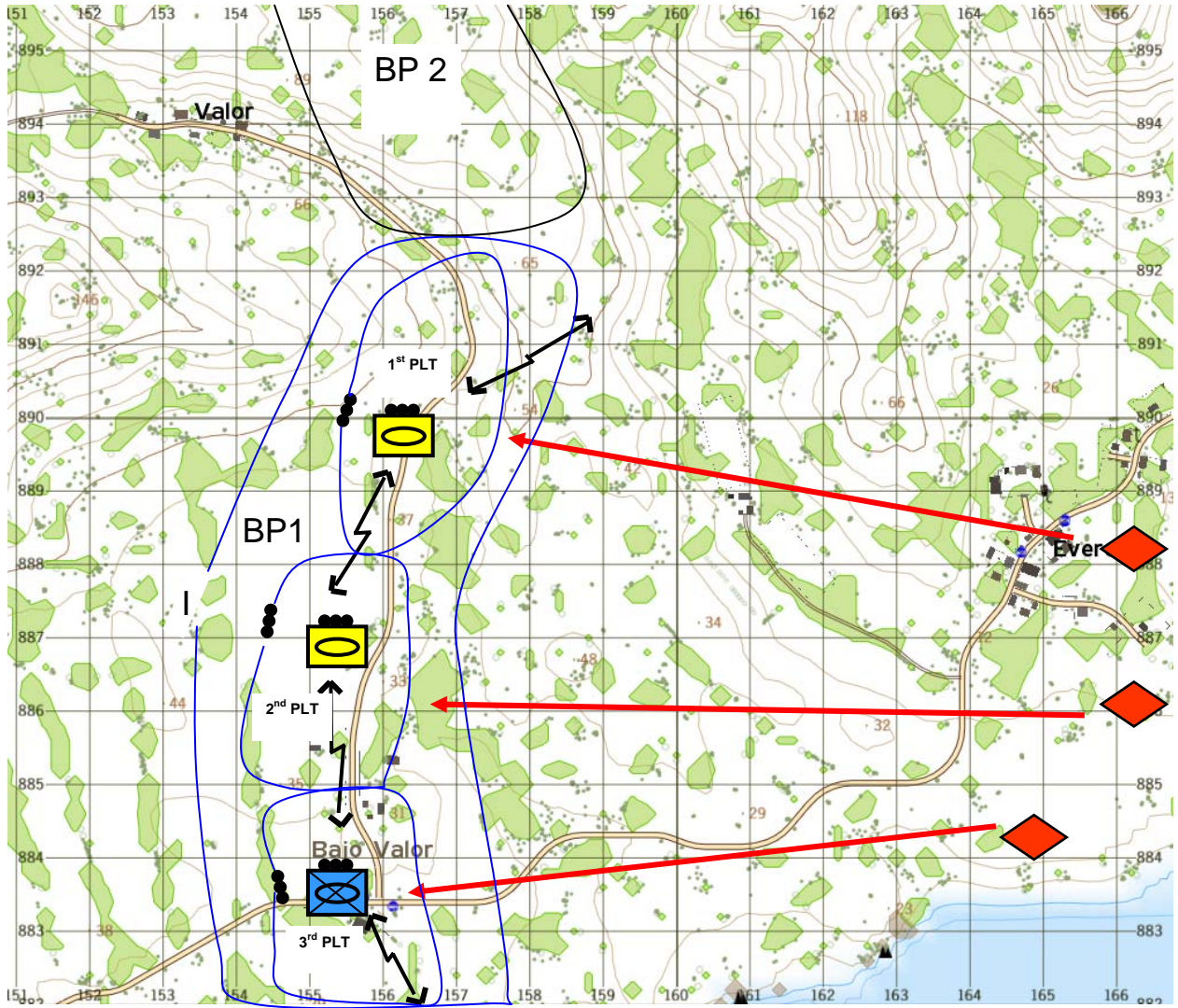
5. COMMAND & CONTROL. See base order.

ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:

EXAMPLE FRAGO



Screen 3D Graphics

FRAGO 4 (Satellite View of AO) View 1



B-C-12-1

FRAGO 4 (Satellite View of AO) View 2



B-C-12-2

FRAGO 4 (Satellite View of AO) View 3

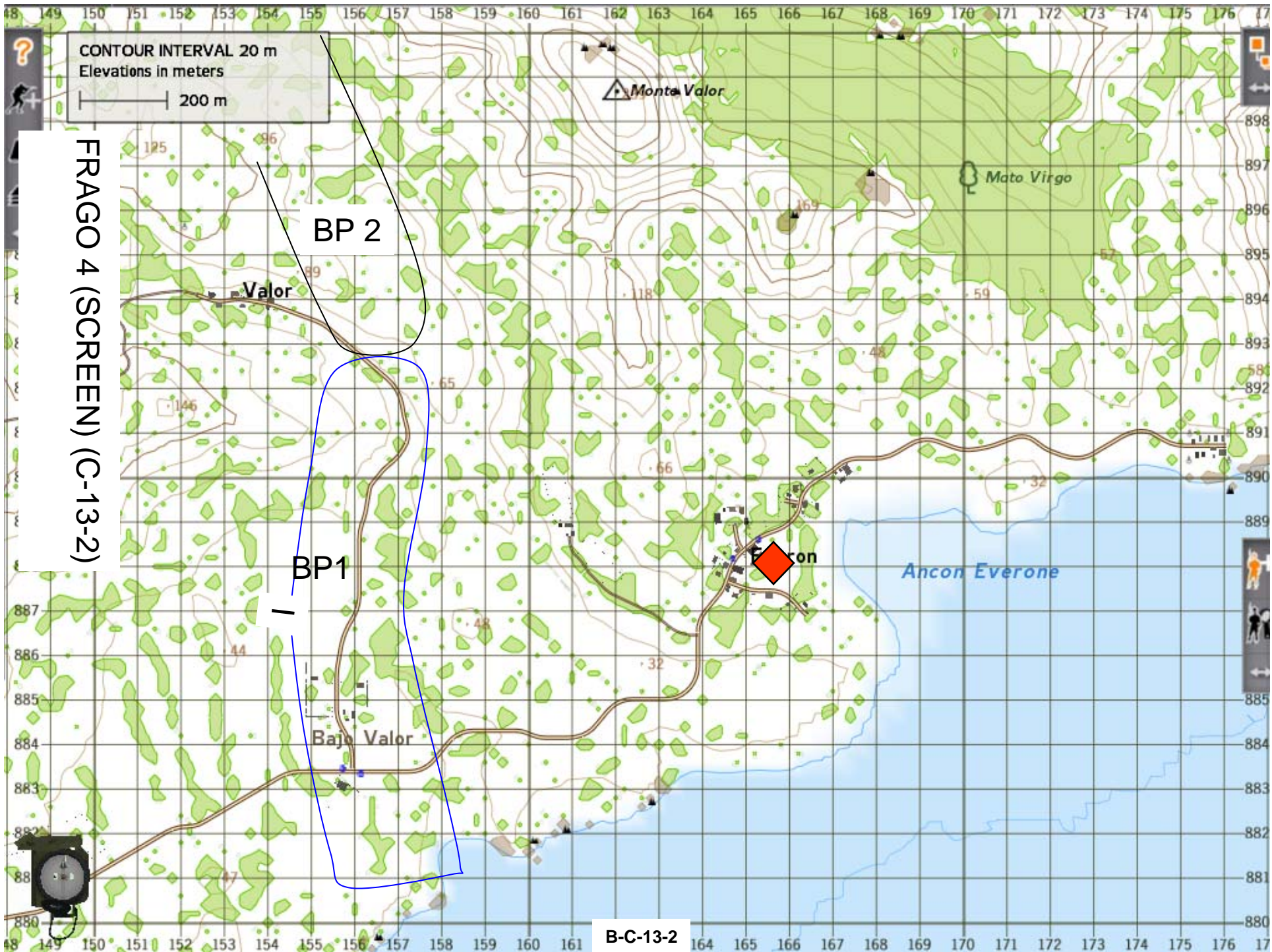


B-C-12-3

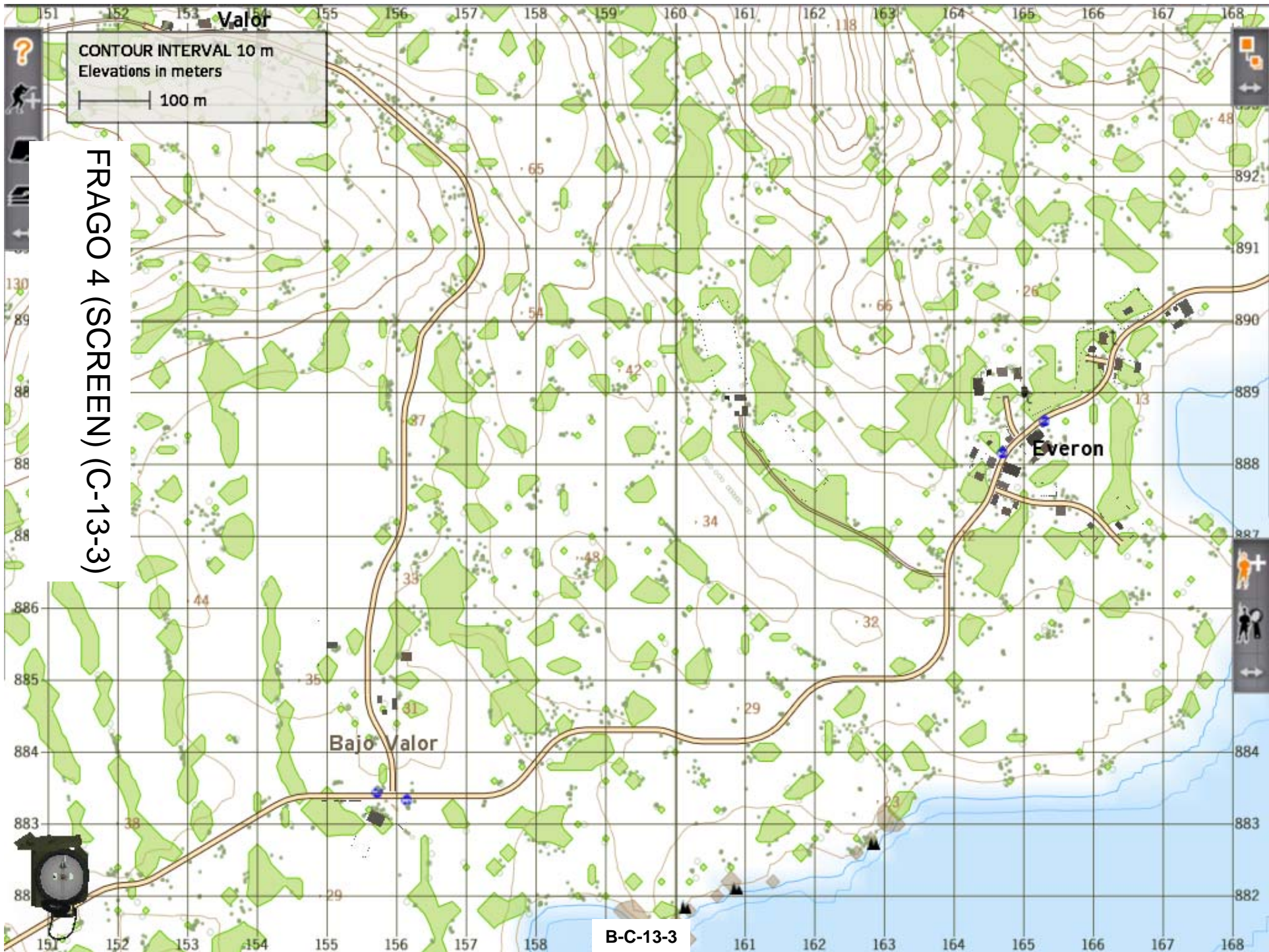
Screen 2D Graphics

FRAGO 4 (SCREEN) (C-13-1)





B-C-13-2



FRAGO 4 (SCREEN) (C-13-3)

CONTOUR INTERVAL 10 m
Elevations in meters
100 m

B-C-13-3

Valor

Everon

Bajo Valor

EXAMPLE FRAGO

FRAGO 5 MOVEMENT TO CONTACT– Appendix C14

1-67 AR
JAMIL AFANDI
(145920)
23 March 2010

FRAGO 05 (Vignette 5)

References:

Map: Sahrani 1:40,000

Task organization: TF 1-67 Armor

<u>TM A/1-67 AR</u>	<u>TM B/1-67 AR</u>	<u>TM C/2-41</u>
1 st PLT (TK)	1 st PLT (TK)	1 st PLT (BFV)
2 nd PLT (TK)	2 nd PLT (TK)	2 nd PLT (BFV)
3 rd PLT (BFV-C Co)	3 rd PLT (BFV-D Co)	3 rd PLT (TK)
<u>TM D/2-41 IN</u>		
1 st PLT (BFV)		
2 nd PLT (BFV)		
3 rd PLT (TK-B Co)		

1. SITUATION.

Enemy Forces. Reconnaissance indicates a major build-up of National Forces in JAMIL AFANDI. Expect mechanized units that will be prepared to defend the city. They will employ indirect fire to slow you advance, then long range direct fire to finish the job. There will be dug in infantry, anti-tank weapons, and armor in prepared defensive positions. They have had 72 hours to prepare. We are currently out of contact with any National Forces.

Friendly Forces. See task organization.

2. MISSION. TF 1-67 conducts a movement to contact in sector NLT 240530MAR2010 to regain control of the river crossing at JAMIL AFANDI. O/O destroys any enemy penetration of the sector.

3. EXECUTION.

Commander's Intent: I intend the battalion to move with companies abreast clearing enemy/insurgents as you continue to move to OBJ PINE. I want you to maintain operational and situational awareness during the patrols. Alpha Team will conduct a movement to contact to the intermediate objective (OBJ ASPEN) to open up the sector for the rest of the battalion.

EXAMPLE FRAGO

Concept of the operation: Each company will maximize its ability to see the enemy at its effective firing range.

Scheme of Maneuver. See overlay.

Tasks to maneuver units.

Team Alpha, 1-67 Armor. TM A, 1-67 Armor conducts a movement to contact to INTERMEDIATE OBJ ASPEN NLT 240530MAR2010. O/O support B Company's clearance of OBJ PINE.

Team Bravo, 1-67 Armor. TM B conducts MTC as the battalion main effort to seize OBJ PINE.

Team Charlie, 2-41 IN. Support B/1-67's attack on OBJ PINE.

Team Delta, 2-41 IN. Follow A/1-67 along BN axis of advance as the counterattack force.

Coordinating Instructions. See base order.

4. SERVICE & SUPPORT. See base order.

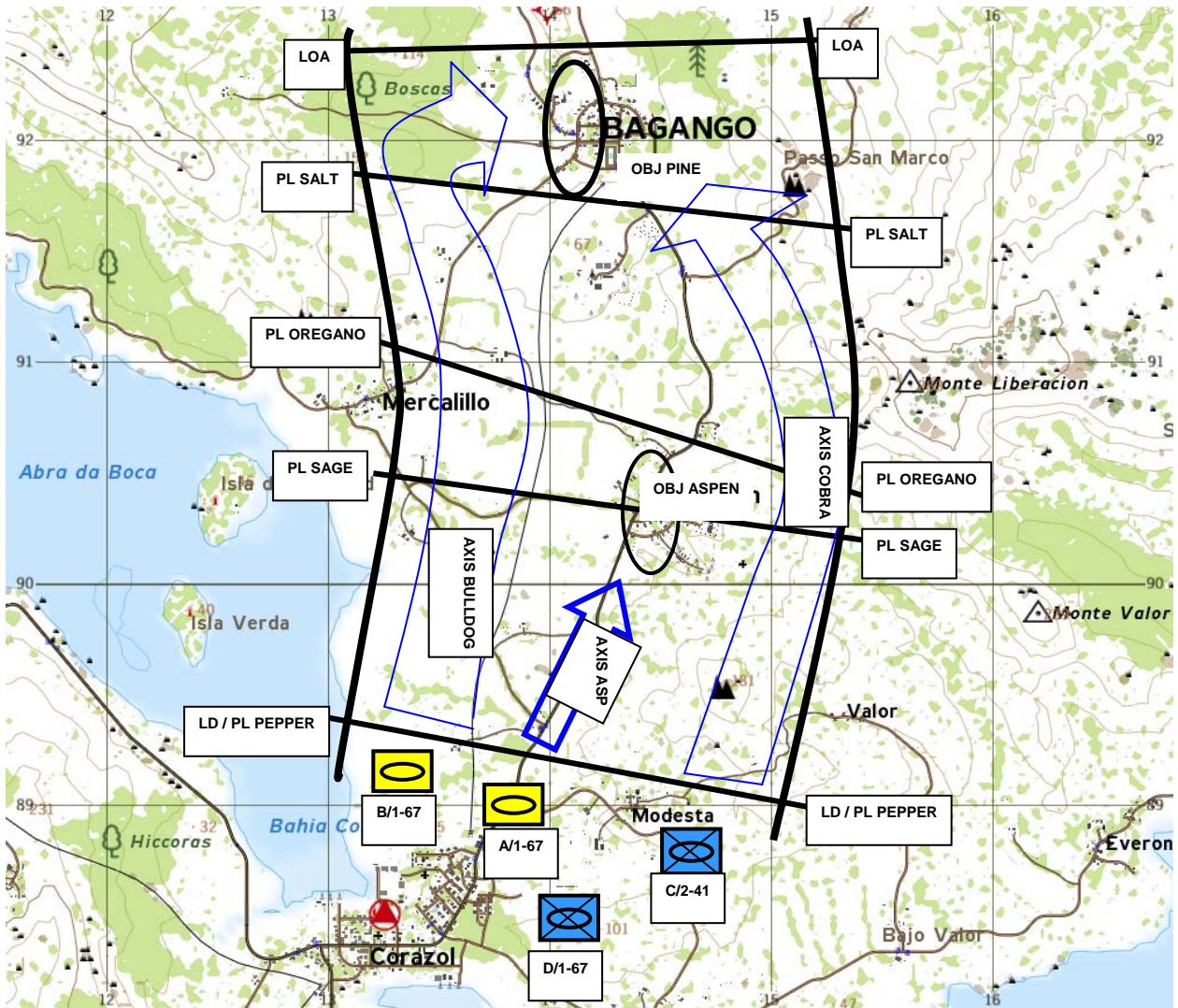
5. COMMAND & CONTROL. See base order.

ACKNOWLEDGE:

DAVID M. POLIZI
LTC, AR
BATTALION COMMANDER

ANNEXES:

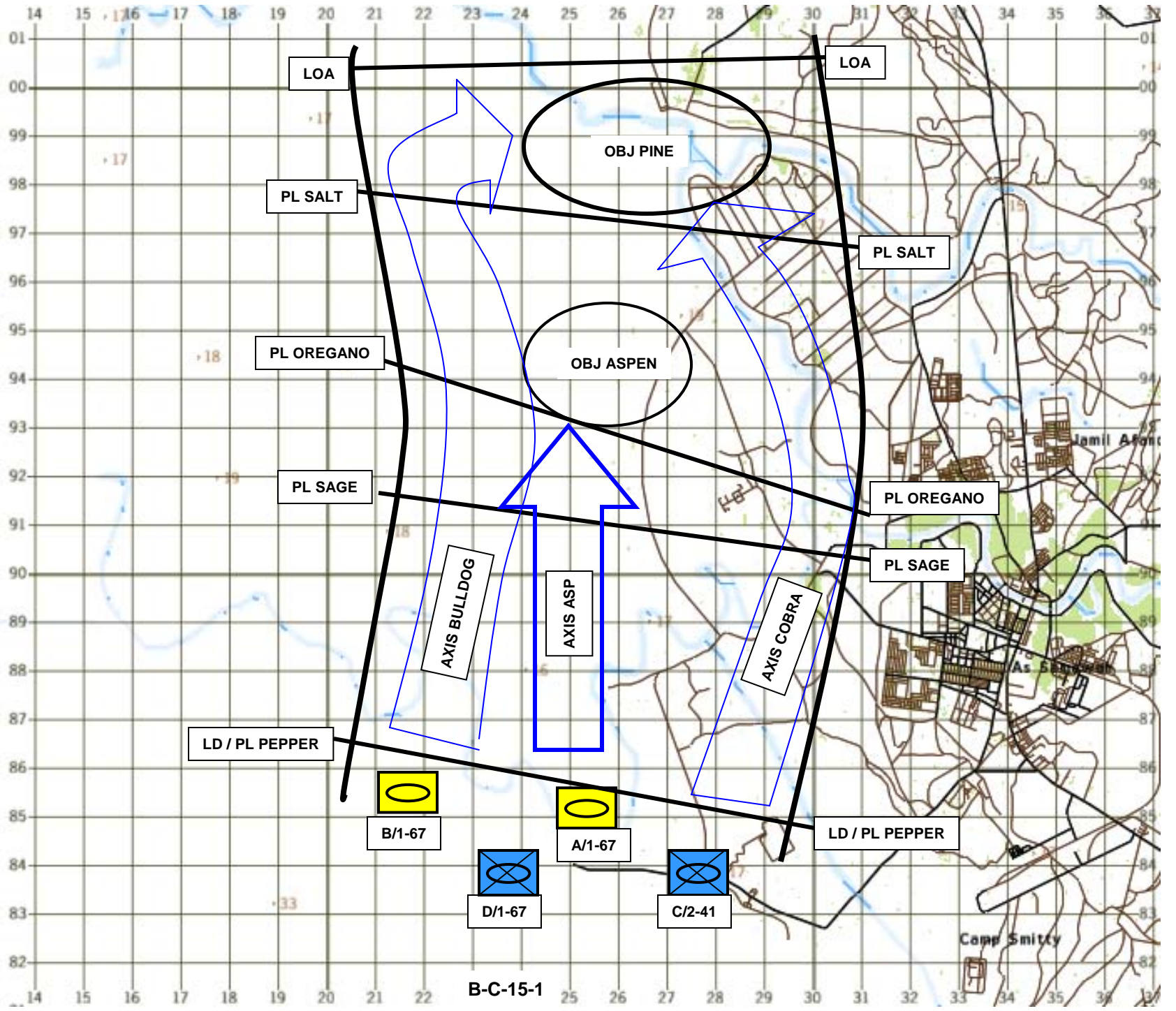
EXAMPLE FRAGO



Movement to Contact

2D Graphics

FRAGO 5 (MTC) (C-15-1)



Appendix C

Data Collection Instruments Used in Testing

	Page
Facilitator Comments Sheet (Preparation Stage)	C-2
Soldier Profile Questionnaire	C-4
Facilitator Feedback Questionnaire	C-6
Participant Feedback Questionnaire	C-9
Technical/Procedural Problems Log	C-12

FACILITATOR COMMENTS SHEET (Preparation Stage)

Participant #: _____ Date of TTP Session: _____

Please use this sheet to record your activities and reactions as you prepare for the test session in ARI's ST-TTP research project.

1. What problems do you encounter in using the *Development Support Package*?

2. What questions or issues does the package fail to resolve for you?

3. By the end of your preparation, how much time did you spend on:

- a. Studying the Introduction _____ hrs
- b. Studying the Leaders Guide _____ hrs
- c. Studying the Facilitators Guide _____ hrs
- d. Studying the TTP forms and tools _____ hrs
- e. Studying the tactical materials _____ hrs
- f. Studying the simulation materials _____ hrs
- g. Getting organized for the TTP session _____ hrs
- h. Other (describe): _____ hrs
- i. Other (describe): _____ hrs

4. How much additional time would you need to fully prepare for the session?

5. As your preparation ends, how confident are you of the following?

	No Confidence	Slight Confidence	Moderate Confidence	Strong Confidence
a. My knowledge of the DSP contents	1	2	3	4
b. My understanding of the TTP method	1	2	3	4
c. The flow of events for the group session	1	2	3	4
d. The decisions I've made for the session	1	2	3	4
e. My readiness to serve as a facilitator	1	2	3	4

6. How would you improve the *Development Support Package*?

7. Other comments or suggestions?

PLEASE BRING THIS FORM WITH YOU TO THE SESSION

SOLDIER PROFILE QUESTIONNAIRE

Name: _____ Rank: _____ Branch/MOS: _____

Time in Service: _____ yrs _____ mos Unit: _____

Position in This Exercise (circle one): CDR PL FACIL

1. Military Education (Check all that apply)

NCOES	
BNCOC	
ANCOC	
1SG Course	
USASMA	
Other _____	

OES	
OBC/BOLC III	
OAC/CPTs Career Course	
CAS3	
ILE	
Other _____	

2. Military Experience (Check all that apply)

NCO	
Vehicle Commander	
Section SGT	
PSG	
CO/TRP 1SG	

Officer	
PL	
CO XO	
CO CDR	
BN XO/S3	

3. Assignment History (List last three positions held, beginning with the most current one)

Position	Unit	Time (months)
1.		
2.		
3.		

4. Deployment Experience (Provide information for all that apply)

	Position(s)	Unit(s)	Time (mos)
OIF			
OEF			
Bosnia			

5. Do you have prior experience with developing unit SOPs or TTPs? (Circle one and explain.)

3-Much Experience 2-Some Experience 1-Little Experience 0-None

6. How familiar are you with FCS and the programmed Spin Outs? (Circle one and explain.)

3-Very Familiar 2-Somewhat Familiar 1-Slightly Familiar 0-Not At All Familiar

7. Do you have special training/experience related to unmanned systems? Yes / No

If yes, explain:



FACILITATOR FEEDBACK QUESTIONNAIRE - ST-TTP

Date _____ Participant # _____ Group # _____

Instructions: The questions below ask for your opinions about the materials and tools you used today to develop future-focused TTP. Write-in comments, both positive and negative, are encouraged. Please use a separate sheet of paper if you need additional space.

1. How much do you agree or disagree that you as the Facilitator were able to:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Effectively led the session	1	2	3	4	5
b. Focused Soldiers' attention to the "how" and "why" of using _____	1	2	3	4	5
c. Encouraged Soldiers' contributions and discussion	1	2	3	4	5
d. Spoke clearly and was easy to understand	1	2	3	4	5
e. Kept the discussion focused and on task	1	2	3	4	5
f. Work collaboratively with the company commander	1	2	3	4	5
g. Allowed the Soldiers to develop the TTP as opposed to telling them what it should be	1	2	3	4	5
Comments and Suggestions:					

2. How much do you agree or disagree that the Materials:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Provided adequate information to understand your role	1	2	3	4	5
b. Effectively explained your duties	1	2	3	4	5
c. Detailed the steps required to achieve your duties	1	2	3	4	5
d. Were clearly presented and easy to understand	1	2	3	4	5
e. Provided a good script	1	2	3	4	5
f. Provided enough background	1	2	3	4	5
g. Adequately defined and explained unfamiliar terms	1	2	3	4	5
Comments and Suggestions:					

3. How much do you agree or disagree that the Orientation:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Set the stage well for the session	1	2	3	4	5
b. Provided everything you needed to know about the method	1	2	3	4	5
c. Contained accurate information about FCS Spin Out 3 capabilities	1	2	3	4	5
d. Adequately addressed all of your concerns questions	1	2	3	4	5
e. Was clearly presented and easy to understand	1	2	3	4	5
Comments and Suggestions:					

4. How much do you agree or disagree that the <u>Table Top Mode</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Provided a useful arena for tactical planning	1	2	3	4	5
b. Provided a realistic environment for constructing TTP	1	2	3	4	5
c. Allowed Soldiers' to see how ____ would function in the scenario	1	2	3	4	5
d. Caused Soldiers' to consider and decide between courses of action	1	2	3	4	5
e. Demonstrated a concrete experience to explore how to use ____	1	2	3	4	5
f. Effectively allowed Soldiers' to consider limitations while using ____	1	2	3	4	5
g. Helped me coordinate efforts across personnel	1	2	3	4	5
h. Demonstrated obstacles to enforcing a strategy	1	2	3	4	5
i. Effectively engaged Soldiers in making decisions relevant to TTP	1	2	3	4	5
Comments and Suggestions:					

5. How much do you agree or disagree that the <u>Simulation Mode</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Provided a useful arena for tactical planning	1	2	3	4	5
b. Provided a realistic environment for constructing TTP	1	2	3	4	5
c. Allowed Soldiers' to see how ____ would function in the scenario	1	2	3	4	5
d. Caused Soldiers to consider and decide between courses of action	1	2	3	4	5
e. Demonstrated a concrete experience to explore how to use ____	1	2	3	4	5
f. Effectively allowed Soldiers to consider limitations while using ____	1	2	3	4	5
g. Helped Soldiers' coordinate efforts across personnel	1	2	3	4	5
h. Demonstrated obstacles to enforcing a strategy	1	2	3	4	5
i. Effectively engaged Soldiers in making decisions relevant to TTP	1	2	3	4	5
Comments and Suggestions:					

6. How much do you agree or disagree that the <u>Procedures performed today</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Facilitated development of sound TTP	1	2	3	4	5
b. Encouraged Soldiers to explore all aspects of the TTP	1	2	3	4	5
c. Created a good method for recording TTP	1	2	3	4	5
d. Enabled me to work effectively with the right focus	1	2	3	4	5
e. Gave me a chance to fully express myself	1	2	3	4	5
f. Took advantage of group interaction and collaboration	1	2	3	4	5
g. Encouraged a good forum for discussing TTP	1	2	3	4	5
h. Allowed effective and efficient recording of the TTP	1	2	3	4	5
i. Allowed the group to come to a consensus	1	2	3	4	5
j. Improved the quality of the TTP as the day progressed	1	2	3	4	5
Comments and Suggestions:					

7. How much do you agree or disagree that the <u>Schedule</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Took too long for the TTPs we developed?	1	2	3	4	5
b. Asked me to do too much in the time I had available?	1	2	3	4	5
c. Allocated the right amount of time for the various activities?	1	2	3	4	5
d. Enabled me to spend my time efficiently?	1	2	3	4	5
e. Organized my activities in the right sequence?	1	2	3	4	5
f. Gave me enough break time when I needed it?	1	2	3	4	5
Comments and Suggestions:					

8. What are your general impressions of the TTP development method you used today?

9. How would you improve the TTP development method you used today?

10. What would you improve in the Facilitators Guide for the next group?

11. What would you improve of the tools and forms used today?

12. What would you change in the example vignettes you tested today?

Thank you for your feedback!



PARTICIPANT FEEDBACK QUESTIONNAIRE – ST-TTP

Instructions: The questions below ask for your opinions about the materials and tools you used today to develop future-focused TTP. Write-in comments, both positive and negative, are encouraged. Please use a separate sheet of paper if you need additional space.

1. How much do you agree or disagree that the <u>Facilitator</u> was able to:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Effectively lead the session	1	2	3	4	5
b. Focus my attention to the “how” and “why” of using ____	1	2	3	4	5
c. Encourage my contributions and discussion	1	2	3	4	5
d. Speak clearly so I could understand easily	1	2	3	4	5
e. Keep the discussion focused and on task	1	2	3	4	5
f. Work collaboratively with the company commander	1	2	3	4	5
g. Allow the Soldiers to develop the TTP as opposed to telling them what it should be	1	2	3	4	5
Comments and Suggestions:					

2. How much do you agree or disagree that the <u>Materials</u>:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Provided adequate information to understand your role	1	2	3	4	5
b. Effectively explained your duties	1	2	3	4	5
c. Detailed the steps required to achieve your duties	1	2	3	4	5
d. Were clearly presented and easy to understand	1	2	3	4	5
e. Provided enough background	1	2	3	4	5
f. Adequately defined and explained unfamiliar terms	1	2	3	4	5
Comments and Suggestions:					

3. How much do you agree or disagree that the <u>Orientation</u>:	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Set the stage well for the session	1	2	3	4	5
b. Provided everything I needed to know about the method	1	2	3	4	5
c. Contained accurate information about FCS Spin Out 3 capabilities	1	2	3	4	5
d. Adequately addressed all of your concerns/questions	1	2	3	4	5
e. Was clearly presented and easy to understand	1	2	3	4	5
Comments and Suggestions:					

4. How much do you agree or disagree that the <u>Table Top</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Portrayed the tactical environment with sufficient realism	1	2	3	4	5
b. Demonstrated the UAS capabilities adequately	1	2	3	4	5
c. Represented enemy elements and capabilities realistically	1	2	3	4	5
d. Caused me to consider and decide between courses of action	1	2	3	4	5
e. Covered a reasonable mix of missions	1	2	3	4	5
f. Enabled me to visualize the battlefield well	1	2	3	4	5
g. Portrayed realistic enemy organizations and doctrine/tactics	1	2	3	4	5
h. Provided sound tactical materials (road to war, OPOD, FRAGOs)	1	2	3	4	5
i. Provided a realistic environment for constructing TTP	1	2	3	4	5
j. Demonstrated a concrete experience to explore how to use _____	1	2	3	4	5
k. Effectively allowed me to consider limitations while using _____	1	2	3	4	5
l. Adequately supported tactical communications	1	2	3	4	5
m. Gave me enough control and flexibility of my unit's behaviors	1	2	3	4	5
n. Effectively engaged me in making decisions relevant to TTP	1	2	3	4	5
o. Was clearly presented and easy to understand	1	2	3	4	5
Comments and Suggestions:					

5. How much do you agree or disagree that the <u>Simulation</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Portrayed the tactical environment with sufficient realism	1	2	3	4	5
b. Demonstrated the UAS capabilities adequately	1	2	3	4	5
c. Represented enemy elements and capabilities realistically	1	2	3	4	5
d. Caused me to consider and decide between courses of action	1	2	3	4	5
e. Covered a reasonable mix of missions	1	2	3	4	5
f. Enabled me to visualize the battlefield well	1	2	3	4	5
g. Portrayed realistic enemy organizations and doctrine/tactics	1	2	3	4	5
h. Provided a realistic environment for constructing TTP	1	2	3	4	5
i. Demonstrated a concrete experience to explore how to use _____	1	2	3	4	5
j. Effectively allowed me to consider limitations while using _____	1	2	3	4	5
k. Adequately supported tactical communications	1	2	3	4	5
l. Gave me enough control and flexibility of my unit's behaviors	1	2	3	4	5
m. Effectively engaged me in making decisions relevant to TTP	1	2	3	4	5
n. Was clearly presented and easy to understand	1	2	3	4	5
Comments and Suggestions:					

6. How much do you agree or disagree that the <u>Procedures</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Facilitated development of sound TTP	1	2	3	4	5
b. Encouraged me to explore all aspects of the TTP	1	2	3	4	5
c. Achieved a good balance between role-playing & TTP development	1	2	3	4	5
d. Enabled me to work effectively with the right focus	1	2	3	4	5
e. Captured my thoughts and insights accurately	1	2	3	4	5
f. Gave me a chance to fully express myself	1	2	3	4	5
g. Took advantage of group interaction and collaboration	1	2	3	4	5
h. Allowed effective and efficient recording of the TTP	1	2	3	4	5
i. Allowed the group to come to a consensus	1	2	3	4	5
j. Improved the quality of the TTP as the day progressed	1	2	3	4	5
Comments and Suggestions:					

7. How much do you agree or disagree that the <u>Schedule</u> :	Circle One for Each Item				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Took too long for the TTPs we developed?	1	2	3	4	5
b. Asked me to do too much in the time I had available?	1	2	3	4	5
c. Allocated the right amount of time for the various activities?	1	2	3	4	5
d. Enabled me to spend my time efficiently?	1	2	3	4	5
e. Organized my activities in the right sequence?	1	2	3	4	5
f. Gave me enough break time when I needed it?	1	2	3	4	5
Comments and Suggestions:					

8. What are your general impressions of the TTP development method you used today?

9. How would you improve the TTP development method you used today?

Thank you for your feedback!

TECHNICAL/PROCEDURAL PROBLEMS LOG – ST-TTP

Date _____ Installation _____ Group # _____

Group Role: Development / Vetting Facilitator _____

Instructions: Investigators will use this log to record technical and procedural problems as they happen (one sheet per day). Technical problems may include loss of a computer workstation, master computer, headsets, radios, environmental systems, vignette crash or loss, software crash or loss, etc. Procedural problems may include missing participants, early-departing participants, absent simulation operator, absent facilitator, noteworthy errors by researchers or participants, interruptions (e.g., emergencies), procedural adjustments caused by technical problems, etc.

Start Time	End Time	What Happened?	What Caused It?	Solution?	Vignettes & Players Affected