Simulation Training Guide

U.S. Marine Corps

UNITED STATES MARINE CORPS

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FOREWORD

Marine Corps Reference Publication 7-20A.3, *Simulation Training Guide*, provides guidance for Marine leaders on how to plan and conduct simulation in support of training. It introduces leaders to the purpose, value, and capabilities of Marine Corps simulations to increase opportunities for achieving cognitively oriented training "repetitions and sets" that mentally prepare Marines for live training.

Training must be both mentally and physically demanding. Addressing the cognitive, moral, and ethical aspects of war through repetition and intellectual rigor is critical. Reinforcing these key attributes through situational decision-making in simulated contexts while learning and refining tactics, techniques, and procedures can directly support a skills-based continuum of standards-based live training. An example of this might be the accomplishment of a successful exercise capstone event that validates prerequisite simulated training support. Simulation offers current and future leaders with a valuable arrow in their progressive training quiver to better and more comprehensively develop their Marines.

Within an integrated training model, simulation helps prepare for or remediate live training, or enables the controlled execution of skills-related tasks in mentally rigorous settings prior to execution under live conditions. It uniquely permits visualization of tasks in context-based conditions that may not be physically accomplished safely due to training environment limitations or excessive activity risk. Through immersive exposure to scenarios in the context of training and readiness events, Marines can experience a range of cognitive options that enhance the skills and confidence necessary to achieve commander's intent in the friction of war. At higher levels, simulation enables training capability integration in the live, virtual, and constructive training environment, reinforcing training realism and complexity while preserving our ability to reveal or conceal how we train as desired.

In conjunction with MCTP 7-20A, MCRP 7-20A.3 and the associated family of MCRPs supersede MCTP 8-10A, *Unit Training Management Guide*, dated 25 November 1996 with erratum dated 2 May 2016 and change 1, dated 4 April 2018; and MCTP 8-10B, *How to Conduct Training*, dated 10 August 2005 with erratum dated 2 May 2016 and change 1, dated 4 April 2018.

Reviewed and approved this date.

ERIC R. QUEHL
Colonel, U.S. Marine Corps
Director, Policy and Standards Division, Training and Education Command

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CHAPTER 1.
SIMULATION FUNDAMENTALS

INTENT

Marine Corps Reference Publication (MCRP) 7-20A.3, *Simulation Training Guide,* is a reference publication that emphasizes leveraging simulation to optimize individual and unit-level training opportunities in a resource-constrained environment. Using simulations to enable cognitive "reps and sets" virtually expands the capabilities and capacity of training venues. It also increases Marine air-ground task force (MAGTF) live, virtual, and constructive (LVC) opportunities to execute integrated training scenarios that accurately replicate actions and effects in current and future operating environments. Leaders at all levels must understand how to best employ simulations to provide and enhance unit-, crew-, team-, or individual-level training. This is particularly important for junior leaders who can, through simulation iteration and integration, hone their ability to plan, brief, execute, debrief, and document unit-level training events to better prepare for specific culminating or capstone training events. This publication seeks to reinforce the comprehensive training approach highlighted within Marine Corps Tactical Publication (MCTP) 7-20A, *Unit Training Guide*, and complements other reference publications identified in the graphic below (see Figure 1-1).

MCTP 7-20A Unit Training Guide - Provides philosophical concept (why and how) for training planning, event and exercise design, and evaluations.

MCRP 7-20A.1 Training Plan Design

MCRP 7-20A.2 Event and Exercise Design

MCRP 7-20A.3 Simulation Training Guide

MCRP 7-20A.4 Evaluations and Assessments
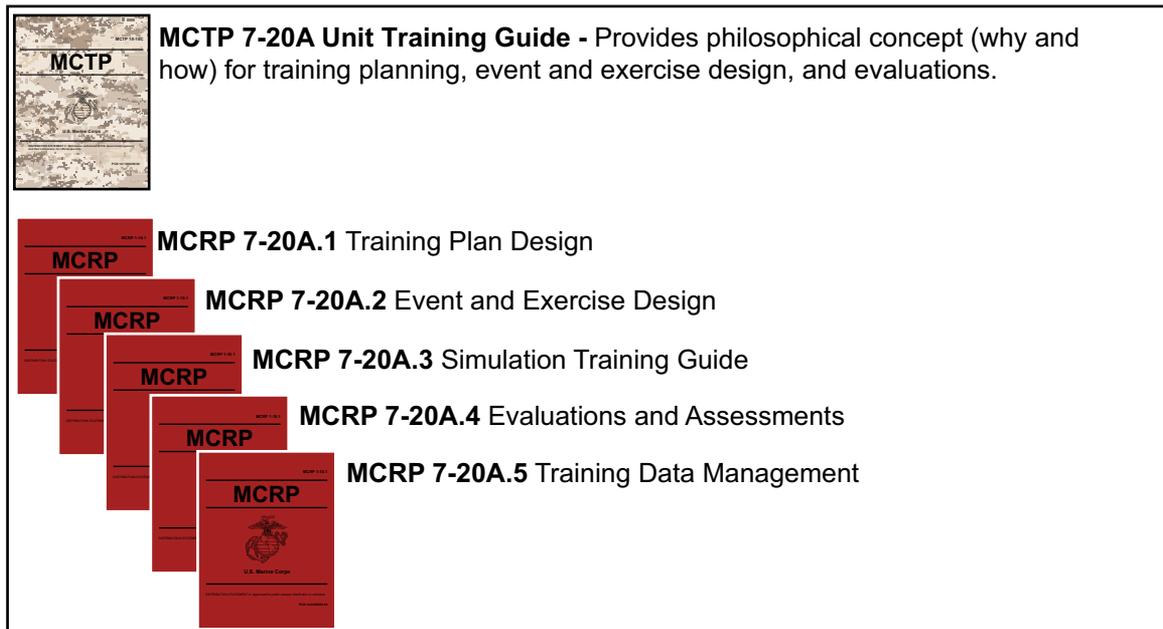
MCRP 7-20A.5 Training Data Management

Figure 1-1. Training Publications Hierarchy.

PURPOSE AND SCOPE

Simulation in the Marine Corps supports the execution of individual and collective training standards and unit mission-essential tasks (MET) for all elements of the MAGTF. This guide provides Marines with practical training reference information for integrating simulation into any military occupational specialty (MOS) community's training plans and philosophies. Routine reviews and adaptation of this guide will help leaders and planners more fully visualize, translate, and leverage the unique advantages of LVC training integration to enhance individual and unit-level combat readiness and effectiveness.

BACKGROUND

The current and future operating environment reflects a growing array of threats to US forces. To ensure combat readiness, the Marine Corps must take advantage of innovative opportunities to train in a more realistic, cost-effective, and efficient manner. As the Nation's premier expeditionary force-in-readiness, leveraging simulation is no longer optional.

Simulation in support of training is essential for Marines to achieve those performance requirements necessary to be prepared for the current and future fight. Marine Corps training and training systems must be capable of supporting the training objectives necessary to achieve basic, intermediate, and advanced warfighting skills and, increasingly, the interoperability of the various Marine platforms, equipment, and communities within the MAGTF.

Individual and unit-level skills and competencies can and will degrade without an aggressive commitment to sustain currency, proficiency, and overall training readiness. Training must be progressive, challenging, and standards-based across the force. It must leverage all available resources—to include emerging technologies and simulations—and the means to adapt and integrate them within a logical, realistic, and collaborative training continuum.

Given limited resources with respect to time, manpower, training space, equipment, and platforms, the integration of LVC training capabilities during home-station periods will enable Marine units to better understand unique or high-risk training challenges in controlled settings while at home station or during deployments for training. Simulations enable Marines to think about what they are doing, how they are currently training, and how they will need to train to meet emerging or forecasted threats. For leaders at all levels, this demands a basic, and, in some cases, a more detailed and comprehensive understanding of simulation capabilities, training requirements, and pre-/post-event briefing/debriefing and planning requirements.

Simulation uniquely permits staffs, units, and individual Marines to exercise, rehearse, and train to accomplish individual and collective training events or combinations of those events in

controlled, risk managed, and repeatable learning settings. These settings range from entry-level and formal school training to managed-on-the-job training opportunities at home station or while deployed. Existing and emerging Marine Corps simulation capabilities enable Marines to train at decision-making, tactical leadership and skill development, exercising of unit standing operating procedures (SOP); individual/small unit tactics, techniques, and procedures (TTP); and higher-level staff planning. Simulations can support the accomplishment or remediation of training and readiness (T&R) events, or the rehearsal of one or more T&R events applied within a mission context. They can also be integrated with live training to derive greater training efficiency and effectiveness.

The Marine Corps has invested substantial resources in developing simulation capabilities to broaden the scope of training events and opportunities. Current simulation systems offer Marines various methods to accomplish, fully or partially, specific mission-essential task list (METL)-based training objectives as defined in community T&R manuals. Simulation training offers iterative and cognitive benefits across a broad range of combat skill sets while reducing training costs and enhancing training efficiency and opportunities for learning. It further reduces many of the operational risks associated with live-only training, while providing added "reps and sets" and more robust after-action reporting-capable systems, all of which give Marines greater task understanding within unique or mission-specific contexts.

The need to fully leverage all available training resources has never been greater and will only increase. To keep pace with emerging and future threats, the Marine Corps needs to anticipate the unique impacts these threats can and will pose to our forces in realistic, simulated settings. Leaders at all levels should make every effort to more fully integrate the training potential inherent in available LVC opportunities. Through a more integrated and deliberate use of simulation in a unit's training progression, we can ensure our Marines are better prepared to engage, counter, and overcome a broad spectrum of tactical, moral, ethical, and high-risk challenges before encountering them for the first time in combat.

VALUE OF SIMULATION EMPLOYMENT IN ESTABLISHING AND SUSTAINING A TRAINING EDGE

Simulation-based training events should be designed to improve individual and collective proficiency in performing tactical and staff actions, procedures, and processes. Ideally, these events progress from T&R based procedural execution and immediate actions to mission focused, scenario-based decision-making in context to prepare for live execution. Well-timed and iterative simulation use allows Marines to effectively experience, rehearse, visualize, and anticipate potential outcomes of discrete friendly and enemy actions at the individual, team, unit, and staff levels before testing lessons, procedures, and essential skills in live environments.

Simulations are no training panacea—they typically do not replicate many of the traditional physical demands of combat and fatigue experienced by Marines during live training. However, well-planned, designed, and executed simulation training can replicate mental stress, pose decision-making challenges, and test a Marine's ability to respond to unexpected or new training stimuli. The use of training simulations, as a precursor to or integrated with field or flight training, enhances cognitive proficiency while reducing the adverse impact of limited training space and resources. They can serve as stepping-stones to live training, or provide opportunities to review and rehearse debriefed errors from a live training event.

Using simulations in training offers Marines scenario-based training experiences that increase opportunities for:

- Focused skill/task repetition.
- Developing and refining thought processes.
- Honing immediate-action responses.
- Rehearsing and validation of SOPs and TTP.
- Enhancing battlespace situational awareness.
- Optimizing critical thinking and recognitional decision-making in context-based training.
- Practicing "reps and sets" in a threat-based scenario against a scaled enemy scenario with enemy actions, reactions, and counteractions.

INTEGRATING SIMULATION INTO A TRAINING PROGRESSION MODEL

Generally, training is more effective when it fully addresses the underlying mental, or cognitive, aspects associated with accomplishing training tasks to attain broader training objectives and knowledge or skills-based outcomes. Training iteration in an LVC approach should progressively establish and reinforce both "habits of mind" and "habits of action." These habits can develop through progressively relevant activities, ranging from formal or informal classroom discussions to wargaming (e.g., chalk talks, map exercises, sand table drills) and use of actual simulations (e.g., partial-task trainers, third party avatar desktop trainers, or medium and high fidelity simulators). This progression can be integrated with live maneuver training, live fire training, or ultimately, non-live fire force-on-force training, highlighted by live or LVC culminating or capstone training events. This type of progression represents a logical learning continuum that can reinforce key learning objectives and enable optimal training plan outcomes.

Through understanding the "cognitive muscle movements" associated with procedures and a baseline prioritization and ordering of task steps within various training contexts, Marines can build or establish "habits of mind" that facilitate conscious flexibility in execution over time. Reinforcing these habits of mind with skills-based execution that integrates procedures with physical actions in various contexts establishes a firm basis for developing "habits of action" that are essential to the accomplishment of discrete tasks and, ultimately, mission accomplishment.

Live, virtual, and constructive training should be characterized by the progressive introduction of increasingly challenging cognitive dilemmas and should involve detailed event preparation, briefing, and debriefing. Generally, this training provides more effective results when it fully addresses the learning of training tasks and objectives to achieve the desired performance outcome of a specific training progression, syllabus, deployment, or exercise. Within an integrated training approach, progressive simulation training should be developed by leveraging the key actions within the key phases outlined in the Systems Approach to Training and Education (SATE) manual for establishing and executing training events. The five phases of training design outlined in SATE—analyze, design, develop, implement, and evaluate—provide leaders, planners, and designers with a logical mental model for establishing a training progression focused on T&R events as building blocks, which can lead to attaining broader readiness objectives and outcomes.

Units should conduct training following a T&R-based training plan that can assess individual and unit performance. An effective sequence of logically executed training events, focused on a specific training outcome, will establish training in controlled and repeatable scenarios that progressively or dynamically add training variables (either threat- or environmentally-related or both) to increase scenario complexity and create cognitive dilemmas that enhance learning through decision making. Within the context of event training briefs, planned opportunities for in-stride reflection, and detailed and informative debriefs, such a progression will enable Marines to succeed and fail, remediate, and ultimately grow by building confidence and experience.

Many industries and civilian occupational fields have long experienced the benefits of establishing a comprehensive training approach that incorporates multiple training modalities. The premise of training today's Marines for tomorrow's fight requires a training paradigm shift that leverages multiple venues and training modalities to enhance and iteratively grow knowledge, skills, confidence, and experience. For instance, commercial aviation conducts all of its initial training through the use of simulators; often, the first time a pilot flies an aircraft is during an actual flight with passengers.

Marine aviation follows a similar training construct, leveraging aggressive use of simulation within its flight training program of instruction to consistently introduce or reinforce the training in a progressive manner. Additionally, Marine aviation adds currency and proficiency standards to further ensure a higher level of standardized individual and crew readiness. This can be seen in the use of platform specific T&R manuals, which delineate what each Marine must accomplish and the standard to which it must be accomplished.

Simulation use within an integrated training model is also growing across the services. The art of developing an integrated model begins with understanding the capabilities and limitations of training in various domains, and in designing a progressive training approach that balances resources and time available with training requirements and a realistic appreciation of available simulations with respect to the needs of the training audience. An integrated training model that uses simulation to wargame or practice partial tasks or subtasks of live individual or collective

training events—or provide opportunities to refresh and hone key skills through repetition—offers proven advantages over the use of live training alone.

By exposing Marines to a variety of training modalities that enable a more comprehensive and informed understanding of standards-based training over time, we develop more proficient and resourceful warfighters and more versatile training leaders. The following chapters are intended to help facilitate this understanding and provide the reader with practical information and guidance that supports the integration of simulation into a training progression.

CHAPTER 2.
SIMULATION CONCEPTS
AND TRAINING CONSIDERATIONS

MARINE CORPS TRAINING ENVIRONMENT

Prior to discussing how simulation fits into a training construct, we must first understand the comprehensive environment within which Marines train. Conceptually, the Marine Corps training environment (MCTE) encompasses the full range of training capabilities and supporting enablers, integrating all training domains and warfighting functions within a single environment. Components of the MCTE include live fire ranges, training areas, immersive training environments, live and virtual role players, force-on-force training, simulators, partial-task trainers, simulations, and networked command and control (C2) systems and applications. By extension, it also includes the unit training leaders, adjacent unit enabling capabilities, battle simulation center (BSC) and training support center (TSC) facilities and support personnel, organic or external unit personnel who support aspects of training events (assessors or evaluators), and the primary or secondary training audiences who facilitate or participate in a Marine Corps training event. The MCTE frames all the capabilities available for use by Marine Corps forces and certain formal schools to achieve identified training outcomes and objectives in accordance with each unit's METL and T&R-based training plan.

Today, the LVC portion of MCTE—the live, virtual, constructive training environment (LVCTE)—is composed of independent training systems with varying levels of interoperability. Existing simulation systems are often standalone and are optimized for specific or partial-task training at the individual or team level. Some simulations can be connected locally at home-station locations in support of unit-level exercises to demonstrate a training capability or to facilitate greater training interoperability. Enabling existing simulation training systems and capabilities to habitually connect geographically separated MAGTF units and training audiences remains an ongoing priority for the Marine Corps.

Training and Education Command (TECOM) is evolving ground and aviation simulations as an LVC family of systems within the larger MCTE in support of the following goals:

- Create a shared training environment that connects geographically separate Marines and units from every element of the MAGTF.
- Support rapid exercise design, planning, control, and feedback of training events.
- Provide user-friendly, intuitive, and reliable capabilities that allow the training audience to focus on achieving combat readiness and accomplishing training events rather than managing the training systems.

- Use combinations of LVC capabilities to enable MAGTF training that more closely simulates how Marines fight than any standalone system can deliver, to include naval integration opportunities.

- Support compatibility with joint and combined training capabilities.

- Leverage best practices across commands, programs, and systems.

- Adopt new or improved techniques and technologies in cost-effective and efficient ways.

- Support on-demand training that is responsive to participating training audiences.

The MCTE, with a more mature and interconnected LVCTE enclave, will better enable distributed and integrated collective training events, exercises, and home station training (HST) opportunities across geographically separated units/locations and with joint and naval partners. Over time, it will connect virtual and constructive capabilities that enable greater shipboard and deployed use.

LIVE, VIRTUAL, AND CONSTRUCTIVE SIMULATION

The Department of Defense (DOD) defines LVC simulation as "A broadly used taxonomy describing a mixture of live simulation, virtual simulation, and constructive simulation" (DOD 5000.59-M, *DOD Modeling and Simulation [M&S] Glossary*). This definition reinforces the idea that all training short of actual combat is simulated to some extent. The MCTE envisions LVC as a general approach, combining training capabilities from one or more of these three simulation types—to include associated C2 and information systems—to create a shared environment, within which units can interact as though they are physically located in the same operational environment. Ultimately, an LVC approach will enhance Marine Corps participation in naval integration and broader joint and coalition contexts, to include exercises, events, and wargames.

Brief descriptions of LVC training categories are provided below. Individual T&R events may leverage one or more of these categories, either sequentially or concurrently, within a training event, exercise, or wargame. LVC training categories can leverage a range of training enablers or support systems, such as weapons, supporting arms processes, communications equipment, platforms that facilitate logistical movement, maintenance, tactical maneuver, staff processes, and digital fire support systems.

- *Live*. Live training involves individual Marines or units augmenting operational equipment with surrogate equipment in training events and exercises approximating combat conditions ("real people operating real systems"). Of note, all live training involves simulation of activities to some extent. The Force-on-Force Training System is an example of a "live" simulation. Alternatively, a radio operator using operational equipment during a command post exercise (CPX) is participating in a live simulation.

- *Virtual*. Virtual simulations involve individual Marines or units training with simulated elements of the operating environment or their organizational equipment ("real people operating surrogate systems"). Examples include pilots training in a flight simulator or ground tactical vehicle crews using a turret trainer for gunnery practice.

- *Constructive*. Constructive simulations are often referred to as "real people providing input to models and simulated systems," and are typically used in staff training, wargaming, and joint

or combined exercises at the battalion level or higher. Constructive simulations train units so that a staff acting as the training audience can exercise as if they were interacting with other units and support capabilities against an adversary force or in proximity to conditionally neutral groups within an operating area. The simulation adjudicates the results of interactions and engagements. Exercise support personnel provide inputs into the constructive simulation and also supply feedback to the training audience of the results. The feedback is transmitted to the training audience through their operational reporting mechanisms in the form of written reports, summaries, and verbal cues.

The DOD Modeling and Simulation (M&S) Glossary provides more detailed descriptions of LVC simulation categories, with additional descriptive examples of each. It also provides definitions of key simulation terms, such as "model," "simulation," or "simulator." For example it defines a model as a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process. A simulation is defined as a method for implementing a model over time, while a simulator is a device, computer program, or system that performs simulation.

CONDUCT OF TRAINING AND READINESS-BASED SIMULATION IN SUPPORT OF TRAINING

Regardless of training domain, Marine Corps MOS, skills-based training is conducted within the scope of discrete T&R-based training events. These events are typically focused on accomplishing a single T&R task to standard, or, in some cases, accomplishing logically grouped training events focused on progressive tasks over time (e.g., grouped tasks that form a syllabus). In cases where simulations can be "federated," or networked, to share data that presents the inputs, actions, and effects of each simulation realistically to all participants with no presentation delay, collective training or integrated unit- or MAGTF-level training can be successfully accomplished. How, where, and when training will be conducted is typically identified through participating unit training schedules, which are based on broader unit training plans, unit training proficiency and currency requirements, and the availability of training resources.

A unit training schedule should identify a designated training leader who is in charge of a training event or group of related training events, to include simulation enabled or supported training. In aviation, this training leader could be a squadron pilot or member of an aircrew who is qualified and or designated by the commanding officer to instruct in one or more functional task areas—or it could be a weapons and tactics instructor who is fully qualified to instruct in all task areas. In a ground unit, a designated small unit leader (e.g., squad leader, platoon sergeant, platoon commander) likely has the responsibility of developing and leading training for subordinate Marines.

The training leader is the unit leader responsible for leading the *planning, briefing, execution, debriefing*, and *documentation* (PBEDD) for a training event or exercise. This individual coordinates with agencies or support staff to ensure the training audience will have all the resources it needs to successfully accomplish training per the training schedule. The training leader has a pivotal role in ensuring that each training event or group of training events is

conducted in a professional and efficient manner that optimizes time, resources, and training audience learning. The training leader also assesses the quality of event completion for training participants, ensures a sound training debrief is executed to assess lessons learned, identifies best practices, and ensures that completion of T&R events is formally documented to account for currency and chaining of appropriate subordinate events.

Higher-level collective training events conducted as an exercise at the battalion/squadron level or higher (such as field training or staff-level tactical exercises) may be led and assessed by the unit commander and evaluated by a separate staff of evaluators under the cognizance of an officer conducting the exercise (OCE). Staff-level preparation for these larger scale LVC exercises may be rehearsed through a mission rehearsal exercise (MRX) that leverages planning and constructive simulation support through coordination with BSC and TSC training staffs. MAGTF Staff Training Program (MSTP) and joint enablers are typically employed in support of Marine expeditionary force (MEF)-level training events, for example. Prior to conducting an MRX in a live field setting, tactical staff rehearsals refine SOPs, exercise C2 channels, and conduct tactical planning against a templated enemy force exercised by a "red cell" or an adversary force. The BSCs/tactical exercise control groups (TECG) can support planning to meet unit-level objectives from the battalion/squadron to the MEF level, and can facilitate the training of the primary staff as well as subordinate staffs and other enabling capabilities (e.g., engineers, fire support).

The planning required to adequately prepare for an exercise of this scope may take one to several months (up to a year potentially at the MEF level, depending on the scope and purpose of the exercise). Within this context, each major subordinate command, major subordinate element, supporting independent unit, element, or attachment may have its own training objectives that can be exercised and achieved within the scope of the training time allotted. The BSCs are staffed and equipped to support this planning effort, and can assist the OCE in developing training objectives that support all participating organizations and elements. Most MRXs or staff training exercises typically last anywhere from 2-5 days, depending upon the needs of the supported units, attachments, and enablers. Appendix B provides links and contacts for BSCs, TSBs, training support divisions (TSD), and TSCs at MEF locations across the Marine Corps to facilitate training discussions, planning, and training options with viable timelines tailored to a unit's needs.

TRAINING AUDIENCES

All training audiences for a T&R-based training event or exercise conducted in any domain—to include both primary and secondary audiences (explained below)—must be identified as part of the pre-event analysis, development, and design planning. A training audience consists of the individual(s) or units who are active participants in the learning associated with training event objectives and outcomes. A training audience for a specific training event or exercise is composed of the individual(s) or units assigned to receive training for planned individual or collective training events included in the event or exercise design. The individual(s) or units who make up the training audience must participate in the briefing, execution, and debriefing of relevant T&R events, and must successfully achieve the desired outcomes associated with event performance standards to receive documented credit for completing it.

A *primary training audience* includes the principal recipients of the primary training objectives designed into a simulation training event or exercise. A *secondary training audience* consists of training participants who may be providing MOS skill-based training support that enables the primary training audience to accomplish designed training objectives. In a well-planned and designed simulation training event or exercise, both primary and secondary training audiences will receive relevant initial or refresher MOS-related training. Secondary training audiences are often introduced in a training scenario that brings together two or more units conducting complementary training—or they could be conducting adversarial training in a force-on-force event or exercise. Simply put, secondary training occurs as a supporting unit enables the actions of a primary training unit or a higher-level staff—essentially, a secondary training audience can achieve training objectives while functioning as a response cell for the primary training audience. An example of the former might include members of a mortar section or an artillery fire direction center/firing battery who are providing fire support to enable call for fire training in support of joint terminal attack controller or joint fires observer training. Mortar section, fire direction center, or firing battery personnel executing T&R performance standards in support of a primary training audience may receive organic training observation from their own T&R manual. Secondary audience participants can then be credited with completing a new T&R event or receive credit for refreshing T&R-based skills from prior events.

An example of a secondary audience supporting higher-level staff training might include an instance where a regimental staff is executing higher-level staff planning and execution events (individual, collective, or a combination of the two) and requires the support of attachments to increase the realism of the training. The primary audience is supported in both planning and event execution by an attached engineer platoon supporting a planned breaching operation. They may also be supported by artillery forward observers attached to representative maneuver companies executing an assigned scheme of maneuver in support of the regiment's concept of operations. In this example, the BSC support staff leverages a constructive simulation capability to support the training of both training audiences. The regimental staff is the primary training audience, and the supporting attachments may be receiving or chaining valid T&R events as representative secondary training audiences whose training directly supports the regimental staff in their training. This example often occurs during Marine expeditionary unit pre-deployment workups or during regimental staff preparations for an upcoming deployment to support an assigned mission.

SIMULATION FACILITATION AND SUPPORT CELL ACTIVITIES

Simulation Site/Facilitation Personnel

Marine Corps simulation facilities are staffed with experienced support and maintenance personnel who are proficient with both the systems they manage and how to support Marine Corps training audiences. These facilities broadly include MEF or installation BSCs, select TSC and TSD locations, and Marine aviation training systems sites (MATSSs) at designated Marine Corps air stations.

While these facility staffs can design training to support T&R events, they are not responsible for or knowledgeable in the specific training needs of each training audience they support. Training leaders must conduct prior coordination with simulation support facility staff to understand system capabilities and limitations and to inform simulation facility staff of the unique training needs of the METL and the T&R events they desire to train. This coordination should include, at a minimum, training date(s)/window(s), training concept of operations based on unit commander's intent; T&R events to be trained with key tasks/sub-tasks and training objectives identified for each session; and the overall desired outcome for each training period. Ideally, the training leader should schedule the event or exercise far enough in advance to facilitate appropriate planning and coordination. In the process, the capabilities and limitations of the virtual or constructive simulation will be refined and better understood, and on-site personnel can help the training leader design the event to optimize the training experience.

The level of coordination required to design a complex training event or exercise, such as one composed of multiple elements and desired force-on-force objectives, generally requires more scheduling and planning lead time. However, the basic processes described above remain relevant. For more complex training evolutions, the unit(s) being trained will often derive significant benefit by using support cells to help design and conduct the training against a live or designed "thinking," or constructively responsive opponent. Often, the primary unit commander will conduct this training to wargame, or exercise staff processes against, a thinking opponent in a competitive manner where some actions may require adjudication or a means for standardizing fair play. The commander or unit training leader may desire to leverage one or more supporting teams or cells to support pre-simulation planning actions and develop supporting planning products to ensure well-coordinated simulation execution.

Red Team

A commander may identify subject matter experts from his own or higher staffs to comprise a red team to role-play and model an adversary's intentions and potential reactions to friendly actions. The red team can help the commander and staff think critically and creatively while notionally fighting the force against a thinking opponent; to see things from a different perspective; to avoid false mindsets, biases, or group-think; and to avoid inaccurate cognitive analogies to frame the problem the commander is trying to solve. A thoughtfully selected and well-trained red team provides the commander with an independent capability to identify potential blind spots in an operational plan or to challenge the organization's thinking about a problem. Red team planning and staff actions typically occur prior to the start of a unit-level simulation event, but can also occur during the simulation, based on exercise complexity, length, or an unanticipated impact to a friendly course of action (COA) that might require further exploration based on the commander's prerogative.

The red team crosses staff functions and time horizons in the Marine Corps planning process. This attribute differentiates a red team from a traditional red cell that typically only performs threat emulation. Of note, members of a unit's red team may be used to supplement red cell actions (see Red Cell below) during an actual simulation event or exercise if previously coordinated with the simulation staff. A red team is not necessarily restricted to personnel from the S-2/G-2 functional areas; it can and should be supplemented or task organized with subject matter experts (SMEs) from other staff functional or warfighting functional areas. If the scope

of potential operations is large or focused on multiple specific lines of operation, lines of effort, or specific tactical problems, the commander can supplement a red team with external SMEs or create problem-specific red teams focused on a particular tactical problem set.

The red team should be formed early in the design or generic planning process and led by a trained red team leader. It should conduct pre-event training or coordination with assistance from MEF LVC teams, MEF G-2s, or BSCs. Different MEFs or higher headquarters may approach red team roles, concepts, or actions slightly differently during planning or execution based on local staff standing operating procedures.

The red team lead should leverage well-trained, doctrinally proficient, and imaginative SMEs who can aggressively pursue the adversary's point of view during early operational design and later COA wargaming. A red team develops critical decision points, projects most likely and most dangerous adversary reactions to friendly actions, and estimates effects and implications on the adversary forces and objectives resulting from friendly offensive actions or reactions. It assists the commander and staff identify weaknesses and vulnerabilities in the operational approach. The red team is often focused on critical or priority actions that the commander desires to learn more about. This can include most likely or most dangerous enemy courses of action by phase, or against critical tactical actions, such as a minefield breach.

Throughout planning and execution, the red team can—

- Broaden the understanding of the operating environment.
- Assist the commander and staff in framing problems and defining end state conditions.
- Challenge assumptions and cultural and training biases.
- Consider the perspectives of the adversary and others (neutral parties, population) as appropriate.
- Aid in identifying friendly and enemy vulnerabilities and opportunities.
- Assist in identifying areas for assessment as well as the assessment metrics.
- May introduce adversary problem sets regarding the cultural perceptions of partners, adversaries, and others.
- Conduct independent critical reviews and analyses of plans to identify potential weaknesses and vulnerabilities.

During pre-event research, the red team—

- Conducts detailed research on recent/relevant adversary history, political organization, economy, demographics, religion, cultural considerations, doctrine, tactics, order of battle, unit tables of organization, weapons systems, command and control systems, intelligence capabilities, sustainment capabilities, allies and partners in the region, sources of funding, key leaders, centers of gravity, critical vulnerabilities, areas of interest, areas of influence, etc.
- In researching, the team considers how the adversary views the area of operations from the aspects of centers of gravity, critical vulnerabilities, key terrain, relationships with local populace and other potential neutral or hostile groups.

- Develops most likely and most dangerous friendly (US/allied/coalition) COAs and concepts of operations, based on operational precedent in the region, access to the region, and infrastructure that can support US reception, staging, onward movement, and integration.
- Develops initial intelligence preparation of the battlefield products to support an adversary scheme of maneuver (most likely and most dangerous adversary COAs at a minimum).
- Identifies best opportunities to spoil US force deployment and/or adversely impact staging operations.

During the design/preparation, the red team can—

- Continue development of planning/execution products from research results (command-directed scenarios).
- Enhance staff estimates by introducing adversary perspectives.
- Complete research and/or identify specific SME support required to support requests for information.
- Participate early in staff processes such as COA development to fully consider the adversary in advance.
- May participate in wargaming as adversary, neutral, or other forces.
- Refine the intelligence preparation of the battlespace based on pre-game "notional/real world intelligence," based on fictional or real-world adversary capabilities and relationships.
- Refine COAs, intelligence preparation of the battlespace, and planning products based on final pre-game observations.

During execution, the red team may—

- Conduct game moves as the opposing force (OPFOR) in response to friendly actions or in anticipation of friendly actions; also the red team remains prepared to clarify game moves or contextualize actions for potential white cell adjudication as required. During a simulation event, red team personnel may augment or supplement the exercise red cell if required and desired in support of exercise designed objectives (see Red Cell below).
- Identify positive and negative impacts or outcomes for the OPFOR based on timeliness and quality of decisions made and/or actions taken by friendly forces. This can be done by event, phase, belt method, etc.
- Prepare to actively participate in the debrief portion of any event.

Red Cell

During a simulation, the primary training audience unit leader or commander may designate or coordinate the participation of a threat-informed cell to represent threat actions and ensure they are emulated within the simulation realistically during game play. The role of the red cell in a simulation is to provide the primary training audience leader or commander with a doctrinally sound adversary to logically (or unconventionally) respond to friendly (blue) COA execution. The red cell also coordinates with simulation personnel to ensure desired threat intent and response emulation is realistically presented.

During pre-event research, the red cell—

- Becomes thoroughly familiar with any constructive system adjudication algorithms or processes to help validate results, respond to questions from training audience members, and enhance the fidelity and realism of the simulated training event.

- Establishes familiarity with (or at least ready access to) the plans and planning products, templates, and matrices of the training audience and the supporting red team. They may include ad-hoc or independent coordination with simulation operators as desired or required to ensure threat capabilities are understood and are properly represented during game play.

During design/preparation, the red cell—

- Becomes familiar with friendly force concept of operations and scheme of maneuver as it relates to all friendly force training audiences.

- Establishes familiarity with blue (friendly) force planning products to better understand potential friction points and anticipate major points and possible responses to simulated engagements based on friendly most likely or dangerous COAs.

- Prepares for specific threat actions in response to triggers that the primary training audience commander may intentionally want to test to achieve simulation training objectives.

During execution, the red cell—

- Anticipates and prepares for potential issues or challenges that may arise as the friendly and red team schemes of maneuver develop, particularly after forces notionally begin to interact through any of the warfighting functional areas. This preparation may assist in sustaining game momentum in response to unanticipated or triggering impacts of friendly actions.

- Prepares to actively participate in the debrief portion of any event.

White Cell

A wargaming simulation must be conducted within a set of objective rules that all competing sides agree upon or acknowledge in advance to ensure a smooth and effective game flow. At the small unit, or even the battalion/squadron level, the leader may desire to designate an informed, unbiased, and neutral party or cell to provide adjudication when the outcomes of game play results may seem unclear or could be debatable. The role of the white cell is to provide the leader or commander with an unbiased, informed, and independent opinion to adjudicate professional differences, unclear data results, or other debatable inconsistencies. The white cell is also responsible for ensuring the accuracy and validity of simulation output and that desired training objectives are achieved. The white cell allows the training audiences to focus purely on realistic training execution.

During pre-event research, the white cell—

- Becomes thoroughly familiar with any constructive system adjudication algorithms or processes to help validate results, respond to questions from training audience members, and enhance the fidelity and realism of the simulated training event.

- Establishes familiarity with (or at least ready access to) the plans and planning products, templates, and matrices of the training audience and the supporting red cell.

During design/preparation, the white cell—

- Becomes familiar with blue (friendly) force concept of operations and scheme of maneuver as it relates to all friendly force training audiences. The white cell also gains similar familiarity with OPFOR planning products to better understand potential friction points and anticipate major points of simulated engagement. In this latter context, the white cell can inject or recommend the activation of threat master scenario event list (MSEL) items or threat emulation scenarios into game play based on prior planning coordination, particularly if the exercise or training event lacks a robust red cell capability.

During execution, the white cell—

- Anticipates potential issues or challenges that may arise as the friendly and enemy schemes of maneuver develop, particularly after forces notionally begin to interact through any of the warfighting functional areas.
- Prepares to actively participate in the debrief portion of any event.

Green Cell

A green cell, if required, can be used to represent neutral operational variables within an exercise. These might include the response of a local populace to an intended or unintended consequence of an action taken by friendly exercise forces or by the red cell. Green cell "responses" to these actions can impact game play and may require adjustment on the part of friendly forces or the red cell. Green cell actions can be role played by the white cell if coordinated in advance during pre-event planning, or can result from the actions/decisions of one or more knowledgeable participating SMEs as desired. Ideally, green cell representatives will possess an understanding of the range of local social customs, cultural or religious sensitivities, and reasonable responses of relevant non-combatant groups or their leaders within a training scenario.

UNIT-LEVEL ASSESSMENT AND EVALUATION

Assessment and evaluation tools enable a commander to ascertain the overall health of the unit training program and the state of a unit's (or subordinate unit's) training readiness at specific points in time. These tools may be applied to training within all training domains, to include pre-training rehearsals and simulation training as a means to enhance the value of training repetitions and task-oriented cognitive development.

Assessment

The commander is responsible and accountable for the state of training and readiness of the unit, regardless of echelon or size. The commander's approach to establishing and sustaining readiness to support the unit METL is expressed through the commander's training guidance and a unit training plan, both of which are executed through the near-continuous execution of a unit training schedule. Subordinate units train within the scope of this guidance, and develop their own supporting guidance and training schedules. If a commander is conducting or leading

a training event, he/she commands it. If a commander's unit or elements of that unit are engaged in a higher level training event as a secondary training audience, then the commander supports the higher-level unit event while unit Marines benefit from conducting their own initial or refresher training.

Assessment falls within the purview of the unit commander, who is making a judgment regarding a subordinate unit's level of training in relation to a MET. It should be conducted to determine subordinate unit progress within the context of the parent unit's training plan and the subordinate unit's training plan and schedules. The commander's assessment of a unit's or subordinate unit's training should be continuous. While the training itself can be delegated to a subordinate leader's supervision, the responsibility to ensure the unit is trained ultimately rests with the unit commander.

The commander has flexibility in how he conducts the assessment process. This can be a formal or informal process. The commander may elect to consider external SME opinions regarding the unit's or a subordinate unit's state of training or readiness. During a constructive simulation event, for instance, the commander may seek the expert opinion of white cell personnel who have observed other units conduct similar training under similar circumstances. During live training, the commander may receive assessment input from other unit commanders or experienced training staff from a local TSC. In either case, the commander considers the assessment of an experienced and qualified internal or external source and exercises judgment in integrating that assessment with the commander's own assessment. Subordinate unit leaders exercise judgment as well when conducting or receiving assessments of training and readiness of a unit within their charge.

Evaluation

Evaluation is one of the most important steps in the SATE process. During this phase the commander, unit leader, or a higher headquarters identifies areas of individual and unit training that need more focused attention to gauge the effectiveness of the training plan and determine the quality of the trainers. Evaluation specifically focuses on unit training and readiness as a function of the overall health of the training program. Evaluation may be continuous, but is usually more episodic and formal in nature. Commander's assessments may drive a commander's decision to seek or conduct a more formal evaluation of both training and unit readiness as a function of clearly understood training guidance and plans—examples include a unit-level Marine Corps combat readiness evaluation or participation in a service-level training exercise. Evaluation can also indirectly validate and identify gaps in the commander's assessment process.

Evaluations are conducted to allow the commander and staff to determine whether the unit training program is meeting its training goals. An evaluation is planned and conducted to measure the efficiency and effectiveness of the training program. Evaluation results can indicate whether additional training is necessary or if the training program needs revision.

During pre-deployment MAGTF training, evaluations may be directed externally based on policy or higher headquarters guidance as part of a formal process to evaluate, or certify, readiness to execute MET-based tasks in support of a core or assigned mission set.

CHAPTER 3.
PREPARATION FOR TRAINING
AND SAMPLE TRAINING MISSION PROFILES

SIMULATION EVENT PLANNING, BRIEFING, EXECUTION, DEBRIEFING, AND DOCUMENTING

The steps identified in the acronym "PBEDD" provide a logical framework for completing T&R-based training events for any ground or aviation community or occupational fields. For example, if an aviator were to plan and execute a training flight, these steps would be equally relevant for establishing a simple, repeatable process that supports consistent progression toward training excellence. Successful conduct of T&R-based training can benefit significantly from a logical, phased mental model. A unit training leader can readily adapt a PBEDD approach to simulation training to help ensure organized, effective task completion and to optimize an efficient learning experience for a training audience. The below considerations are comprehensive but may not be all-inclusive; they should be reviewed and revalidated periodically and adapted to unique home station coordination or logistical constraints. Planning early and in detail will preclude potential delays in training due to lack of knowledge or asset availability. Larger, more complex simulation events involving multiple training audiences, such as a battalion/squadron or regimental/group CPX with attachments and/or enablers, may require more planning lead-time to effectively execute. Major planning requirements may include the following:

- Identify an appropriate MET-based scenario with a realistic threat based on anticipated mission requirements.
- Establish an exercise window suitable for all training audiences and supporting agencies.
- Identify a red team, and a red, white, and green cell to support planning and event execution as required.
- Coordinate exercise support requirements for all participants.
- Establish primary and secondary training objectives and a consolidated MSEL as required.
- Develop a plan.
- Issue an order.
- Conduct pre-event briefs.
- Conduct the exercise.
- Conduct post-event/exercise debriefs.
- Conduct a detailed after-action review (AAR) for participating units, cells, and support elements.

Planning Considerations

Major planning considerations include the following:

- Know resource scheduling lead times/requirements and with which agencies to schedule training.
  - Training leader may require unit-level support in coordinating scheduling of simulation assets.
  - Assess and understand the complexity of event or exercise. For example, planning to accommodate training audience size, incorporation of multiple training audiences, and local scheduling SOPs may require longer advanced lead times. Examples of complex evolutions usually include naval, joint, or other dispersed simulation exercises that may incorporate non-Marine Corps training networks.

- Identify desired training requirement, to shape requirement for simulation operators and red/white/response cells.

- Ensure requirement alignment to unit training guidance, training plan, and subordinate training guidance/plans—does the requirement align with unit MET/METL?

- Identify individual or collective T&R training code(s) for events that meet the training requirement.

- Identify training leader or leaders—particularly if more than one is required.

- Identify qualification and simulation experience of training leaders.

- Identify training audience (by unit(s), name, and total number of trainees).

- Assess anticipated need for MAGTF Integrated System Training Center training for respective training audience personnel to prepare training audiences and response cells for simulation training at a BSC as appropriate.

- Confirm prerequisite training code(s)/record of satisfactory completion/currency for training audience participant(s) within the Marine Corps Training and Information Management System (MCTIMS) or Marine Sierra Hotel Aviation Readiness Program (MSHARP) system.

- Identify training code performance standards suitable for simulation—identify simulation systems capable of supporting code(s).
  - Contact agency (BSC/TECG, TSB, TSC, TSD, installation, site lead) who manages simulation system(s) capable of supporting training event(s).
  - Coordinate simulation scheduling window to provide sufficient time and exposure to complete executable performance standards—consider asset scheduling lead times.
  - The using unit/training leader establishes and refines a simulation control plan as required with the supporting simulation agency(ies) to formalize decisions regarding training roles, agencies supporting, assets required, system configurations, periods of interoperability, and functional testing required when more than one simulation system type may be employed within a single location or across distributed geographic locations.
  - Identify review materials suitable to support training audience preparation for training.

- Consider operational security, validation of participant clearance levels, classification level of materials used to support the training, and management/handling of any classified materials used within a diverse training audience.

- Identify transportation lead times and coordinate requirements to accommodate movement of training audience to simulation location.
- Identify pre-event training discussion/chalk talk/wargaming locations/times to training audience if required or beneficial.
- Identify SMEs or external unit support personnel required to support training brief/execution.
- Identify uniform, special equipment, or reference publications required to facilitate the training event(s).
- Ensure training logistics and rules of engagement plan are coordinated for training site and address in pre-event brief—use facility diagrams/on-site maps to support pre-event/ on-site briefs.
- Ensure training is published on unit training schedule.
- Ensure SME support personnel have the event briefing and execution schedule.
- Coordinate to resolve any short-fused on-site simulation technical challenges or training plan deficiencies at least one week prior to the event with BSC/TECG.
  - Coordinate on-site link-up time for "last 5 yards" coordination with simulation site.
  - Provide training roster and team groupings breakdown to simulator site personnel to facilitate training, communication, and transitions.
  - BPT support on-site staff as required to optimize simulation training resources and time.
  - BPT support training audience members as required to facilitate training.
  - Identify site locations for training group/entire training audience hasty debriefs as considered necessary.
  - Conduct final training audience communications exercise to confirm pre-event functionality and readiness of C2 systems and communications equipment.
- Additional considerations for more complex, multi-day training events involving a primary and one or more secondary training audiences conducted at a BSC/TECG:
  - Identify METL and key training objectives/desired outcomes for all participating training audiences (primary/OCE and secondary/supporting elements or attachments).
  - Determine for the multi-day training evolution, by training audience and element, desired T&R events and any major specific training requirements required to support a training audience's training plan.
  - Conduct initial planning session with BSC/TECG staff to lock on dates and general scope of exercise—review key administrative details (parking plan, site layout, etc.) for inclusion in participant admin/logistics situational awareness updates.
  - Identify designated unit lead(s) representing the OCE.
  - Identify secondary training audience leads by name/unit/point of contact information.
  - Identify all training events/objectives for all primary and secondary training audiences.
  - Identify red cell and white cell personnel and space requirements for the event.
  - Plan and schedule primary/secondary training audience/response cell training opportunities for exercises at battalion/squadron level and above to ensure response cell familiarization with simulation system and supporting communications systems and readiness to participate in the simulation exercise. This area is often overlooked and under-resourced.

- Develop and provide or collaboratively design (with BSC staff) a tactical scenario that drives the exercise for all training audiences.
- Solicit and develop a comprehensive MSEL for all training audiences.
- Conduct adequate day initial/mid-planning conference (IPC/MPC) with BSC staff to validate logistical, communications, training space, and special equipment requirements (green gear interfaces to secondary audiences in the field as desired).
- Conduct scenario-based mission planning to exercise participant planning.
- Develop and disseminate operations order, to include a detailed communications plan.
- Conduct daily response cell communication checks to validate communications plan, identify any unforeseen communication gaps or oversights, and check for proper data exchange between systems across the training audience—all cells on-hand.
- Conduct final planning conference (FPC) to facilitate final event planning, BSC staff briefs, "road to war" brief, training audience briefs, and to set up spaces for operations— larger exercises may include review of airspace control order, air tasking order, and operational tasking data link overview as appropriate.
- Plan for daily stand-up/end of day briefs for intelligence updates/fragmentary orders, and planned training audience huddles as desired.
- Plan daily space cleanup for each response cell.
- Plan for daily training audience updates to capture lessons learned in stride (start, end of day, or other cycle based on facility availability or other potential constraints).
- Conduct final out brief on last day of exercise; final cleanup; final communication gear breakdown; final gear adrift checks.
- Final AAR for key personnel from all training audiences (on-site or off-site, within one or two days after exercise concludes).
- Provide BSC/TECG staff with any final event outputs (lessons learned, etc.) for their files with key points of contact.

Briefing Considerations

Briefing Considerations are as follows:

- Unit-level individual or collective virtual training event.
  - Conduct a pre-event training brief to finalize any coordination with site support personnel.
  - Conduct a detailed, pre-event training brief for the training audience prior to arrival at the training site.
  - Detailed post-event AAR brief to address lessons learned and key themes/takeaways for reflection.
- Complex, multi-day training events involving a primary and one or more secondary training audiences conducted at a BSC (increased briefing requirements).
  - Pre-event training coordination briefs with BSC/TSC/evaluator staff—IPC, MPC, and FPC—should ideally include unit-level representation from all units participating as training audiences (as desired).
  - Unit Level Planning Briefs—Pre-Event
    - OCE-led MET/METL review discussions with out brief (as desired).

- OCE-led MSEL development discussions with out brief (as desired).

- OCE-led operations order review with key participants.

- OCE and secondary training audiences—internal unit discussions and briefs to train/ prepare training audience participants.

- White cell and red cell briefs with BSC/TSC staff (as appropriate).

- "Road-to-war" brief with BSC/TSC/evaluator staff(s) and key training audience participants.

- BSC/TSC/evaluator execution staff brief (as appropriate).

- OCE-led/training audience/cell daily stand-up briefs or huddles as required (with previous day reflections or current-day key action guidance).

- End-of-day out brief/"quick look" roll-ups of day's activities.

- OCE/BSC/TSC/evaluator-led final AAR brief with key training audience participants.

Execution Considerations

Execution considerations are as follows:

- Unit level individual or collective virtual training event.
  - Provide training audience any adjustments to training plan by exception.
  - Execute planned training.
- Complex, multi-day training events involving a primary and one or more secondary training audiences conducted at a BSC.
  - Conduct "road to war" final event planning one day prior to exercise, which includes BSC staff briefs, "road to war" brief, training audience briefs, and to set up spaces for operations.
  - Plan for daily stand-up/end of day briefs for intelligence updates/fragmentary orders, and planned training audience huddles as desired.
  - Plan daily space cleanup for each response cell.
  - Plan for daily training audience updates to capture lessons learned in stride.
  - Track training event codes completed as the exercise progresses for initial, refresher, or chaining training and readiness credit as appropriate.

Debriefing Considerations

Debriefing is the most critical aspect of any training evolution, where lessons learned are reviewed, reinforced, and reflected upon. The following considerations apply:

- Unit level individual or collective virtual training event.
  - Detailed post-event AAR brief to address lessons learned and key takeaways for reflection.
  - AAR should capture lessons learned regarding any issues or successes with simulation systems with respect to the training conducted. Simulation operators should attempt to save scenario files or products to develop a ready library or catalog of simulation scenarios for future reuse or modification. The benefits of repeatable simulation training are expanded if opportunities that optimize training capabilities are readily available to users.

- Refer to Marine Corps Reference Publication 7-20A.4, *Evaluation*, for additional techniques and considerations for conducting a professional debrief.
- Complex, multi-day training events involving a primary and one or more secondary training audiences conducted at a BSC.
  - OCE-led/training audience/cell daily stand-up briefs or huddles as required (with previous day reflections or current-day key action guidance).
  - End-of-day out brief/"quick look" roll-ups of day's activities.
  - OCE/BSC/TSC/evaluator-led final AAR brief with key training audience participants.
  - Distribution of any key final outbrief documents to senior leaders, key participants of each training audience.

Documentation Considerations

Logging satisfactory completion of all training audience T&R training event codes in MCTIMS/MSHARP for all training participants by unit/training audience—includes initial/refresher T&R codes completed, as well as any chained codes relevant to individual participants.

SIMULATION TRAINING MISSION PROFILES

This section provides examples of representative simulation mission profiles that reflect potential use cases and a means for thinking about how to develop a progressive use case approach for a tailored representative training mission profile. These use cases are self-explanatory, and reflect an approach that leverages the training progression model established in the *Integrating Simulation into a Training Progression Model* section in chapter 1.

Virtual Simulation Training Mission Profile: Unit-Level Fire Support Progression

Primary Training Audience: Proposed unit-level candidate for joint fires observer training—OR—individual non-commissioned officer skill development training (potentially a unit-level cohort).

Task: Provide progressive fire support training to increases non-commissioned officers' ability to employ supporting arms.

Training Events: Classroom (discussion, gaming with map/sand table); progression of fire support simulation exposures; live training event with enablers.

Scenario: As desired, in accordance with unit METs and likely areas of future deployment/employment.

Simulation systems: Deployable Virtual Training Environment (DVTE) (virtual battlespace [VBS] 3/VBS4), supporting arms virtual trainer.

Facilities/ranges: DVTE Cell (BSC/TECG); local live fire range capable of supporting close air support/indirect fire weapons employment; local flying area to support live fire aerial maneuver; local gun positions to support indirect fire.

Mission support products: Tactical scenario; training event MSEL; five- paragraph order; tactical maps; battle boards; unit tactical SOP; plotting materials.

See Figure 3-1 for an example of a virtual simulation training mission profile.
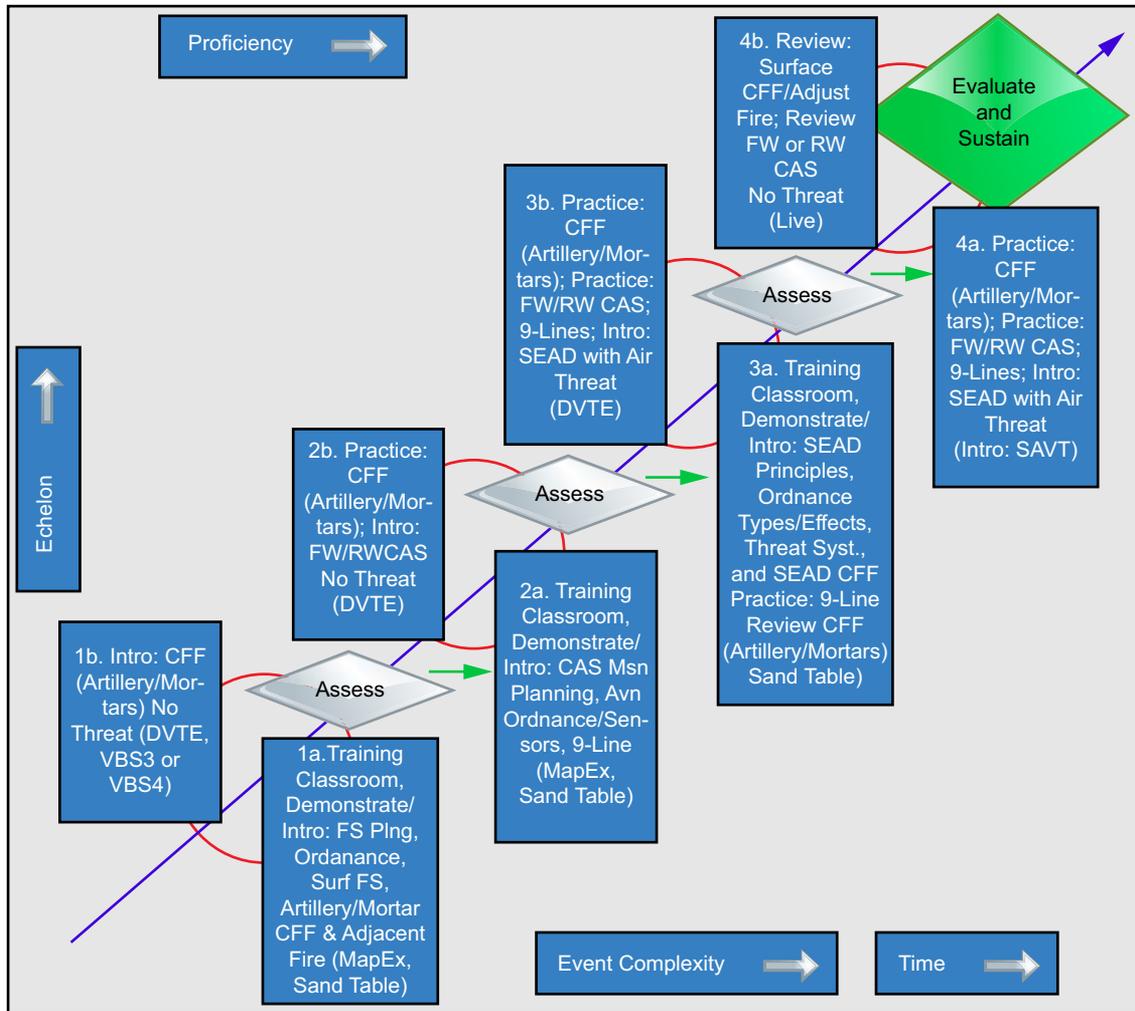
LEGEND

Avn	aviation	**FW/RW**	fixed-wing/rotary wing	**SAVT**	Supporting Arms Virtual Trainer
CAS	combined air support	**FS**	fire support	**SEAD**	suppression of enemy air defenses
CFF	call for fire	**Msn**	mission		

Figure 3-1. Virtual Simulation Training Mission Profile.

**Constructive/Virtual Simulation Training Mission Profile—
Staff Exercise with Primary Training Audience and Secondary Training Audience Enabler Support**

Primary Training Audience: Maneuver battalion, regimental, or Marine expeditionary unit staff.

Secondary Training Audience: Enabling or supporting capabilities/detachments; examples might include reconnaissance, engineer, artillery, air/naval gunfire liaison company, and one or more maneuver company cells.

Task: Conduct scenario-based staff level exercise to hone staff processes and to integrate activities of supporting enabling capabilities, existing detachments, or future detachments in order to hone basic staff relationships.

Training Events: Staff planning (IPC/MPC/FPC) integration and experience; pre-event detachment training on supporting virtual capabilities; staff/collective team exposure to constructive training capability employment; classroom (discussion, gaming with sand table/ combined arms staff trainer board).

Scenario: As desired, in accordance with unit METs and likely areas of future deployment/ employment; pre-event rehearsal (e.g., integrated training exercise).

Simulation systems: MAGTF Tactical Warfare Simulation; CACCTUS (Combined Arms Command and Control Training Upgrade System); DVTE (VBS3/VBS4 where applicable).

Mission Support System: Common operating picture system (e.g., Command and Control Personal Computer [C2PC]), unit-level communications equipment.

Facilities/ranges: Local live fire range(s) and maneuver areas capable of supporting scenario-driven maneuver or supporting unit live-fire requirements; supporting airspace reservations; gun positions.

Mission support products: Tactical scenario; training event MSEL; five-paragraph order; unit communications plan; tactical maps; battle boards; unit tactical SOP; plotting materials.

See Figure 3-2 for an example of a constructive/virtual simulation training mission profile.

Figure 3-2. Constructive/Virtual Simulation Training Mission Profile.
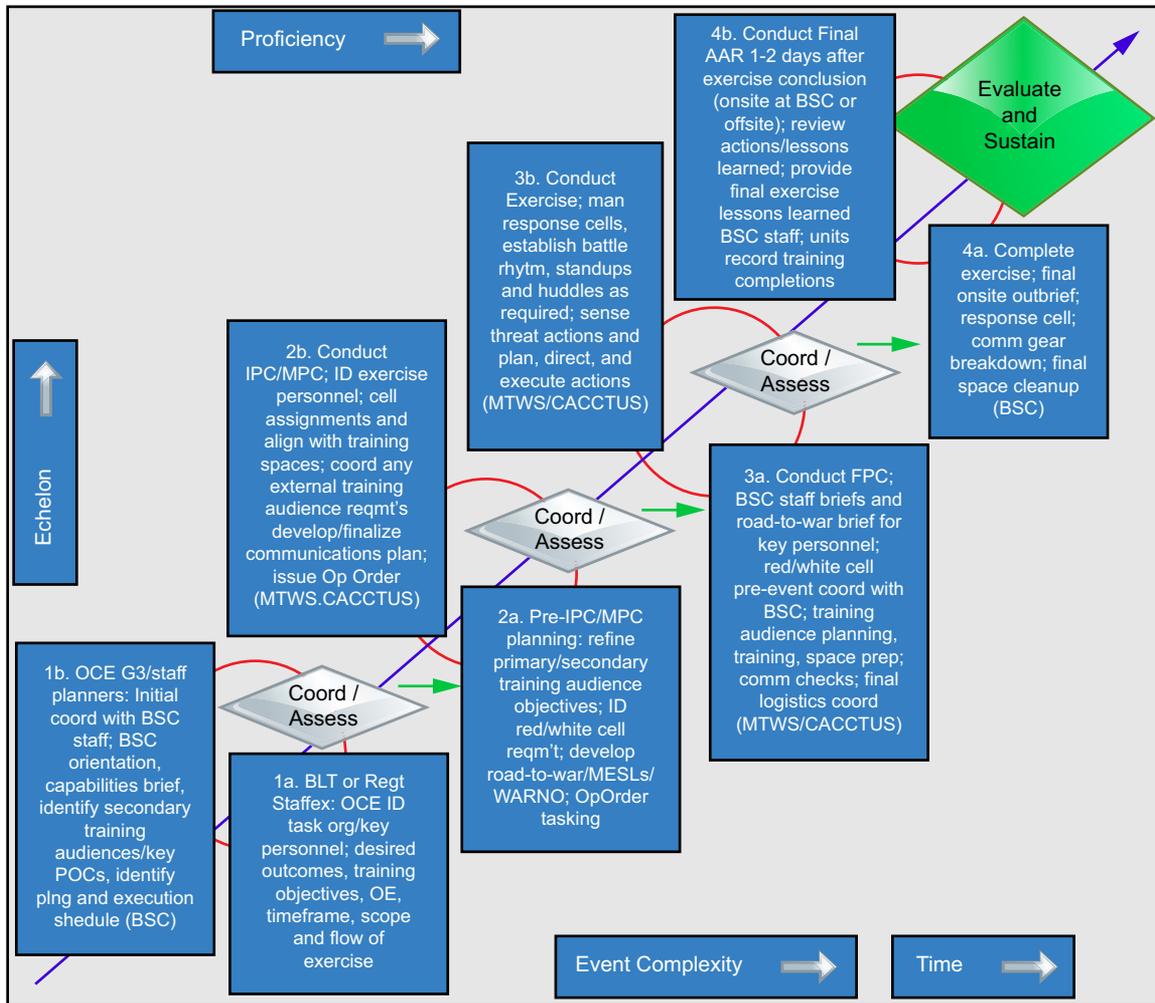
LEGEND
BLT   battalion landing team   OE   operational environment
MTWS   MAGTF tactical warfare simulation   Regt   regiment

APPENDIX A.
Key Marine Corps Simulation Stakeholders

Several key organizational entities or stakeholder groups are responsible for developing and supporting Marine Corps capabilities that support Marine Corps training and education policy development, implementation, and delivery, to include simulation. This section identifies and describes these stakeholders to ensure the simulation user gains a basic understanding of where our simulation capabilities are conceptualized, funded, designed, validated and accredited, sustained, and managed over time to provide a robust and useful training experience within today's fiscal constraints.

COMMANDING GENERAL, TRAINING AND EDUCATION COMMAND

The Commanding General, TECOM is responsible for validating training requirements; developing collective and individual training standards; and supporting MEFs in the execution of unit-level training, formal school training, and professional military education.

INTERNAL TO TRAINING AND EDUCATION COMMAND

Ranges and Training Programs Division

The Ranges and Training Programs Division (RTPD) provides training and education support to enhance the effectiveness and efficiency of training and education programs across the mission spectrum. The division ensures LVC training and simulation assets are programmed, managed, and integrated into training and education programs in a consistent manner across the enterprise through centrally-sponsored programs and initiatives that—

- Facilitate and support effective use of ranges, training systems, simulators, and other training resources.
- Provide resources to support training range modernization and sustainment.
- Deliver training support services responsive to Marine Corps forces and supporting establishment requirements.

Synthetic Training Integration Management Branch. The Synthetic Training Integration Management Branch (STIMB) within RTPD sponsors, develops, coordinates, and evaluates the integrated architecture of the MCTE, the governance processes necessary to ensure the provision of integrated training capabilities, and the tools and resources that support multiple training capabilities. This branch's role is to improve unit, collective, and staff training across all elements of the MAGTF and to enable naval, joint, interagency, interdepartmental, and multi-national training interoperability. STIMB portfolio management provides resource sponsorship and oversight of non-standard training simulation by identifying, refining, and validating needs and gaps within training to provide accredited training systems to the total force. Key STIMB tasks are leading, prioritizing, and coordinating modeling and simulation requirements development through identification of training gaps and needs, sponsoring programs of record/project resources, developing training products and instructional materials, and supporting/representing Commanding General, TECOM in the role of principal advisor for training and education.

Range and Training Area Management Branch. The Range and Training Area Management Branch within RTPD provides a comprehensive and integrated program of services and range training systems across the training continuum. Branch efforts enable Marine Corps forces to achieve and sustain combat readiness. The Range and Training Area Management Branch executes TECOM responsibilities for matters related to Service-level ranges and training area doctrine, policy, standardization, range safety, range certification, range clearance, and range system modernization, recapitalization, and sustainment. The Marine Corps range training area management program, to include immersive and force-on-force training, identifies, validates, and prioritizes range training area requirements to provide an integrated program objective memorandum submission to support future years' defense plans. The complete range training area program includes the following:

- Acquisition and life-cycle support for range training systems.
- Immersive and force-on-force training requirements.
- Range operation/control services.
- Operational range clearance and ground range sustainment projects.
- Range management scheduling.
- Range safety programs and automated tools.
- Range operations professional development courses.
- Other range-related training support programs.

Training Support Center Branch. The Training Support Center Branch provides HST design and execution support to integrate TECOM-funded training enablers and facilitate standards-based training that assists unit commanders in meeting their T&R requirements. The TSC Branch is embedded within RTPD, at Quantico, Virginia, and the TSC support organization is task-organized with six TSC sites located at Marine Corps installations with a MEF headquarters or a significant Marine Corps forces training presence. The branch sites act as TECOM's principal

training support integrator by maintaining relationships with the Marine Corps forces and major commands. The TSC sites serve as the local coordinating element among TECOM HST entities by clarifying operational and training requirements and providing information about training resources to supported units with recommendations for alignment and sequencing within unit training plans. For support of non-HST training, TSC sites coordinate with the appropriate TECOM entity (e.g., Marine Air-Ground Task Force Training Command [MAGTFTC], MAGTF Staff Training Program Division) to establish scope, responsibility and access to resources, and collaborate as required to provide the requisite support requested by the unit. The TSC sites also provide regular feedback on the efficacy of TECOM programs based on observation of training and use of training resources. Informed and guided by these actions, the TSC sites will offer information briefings and scenario/product support locally, and align training event efforts to unit METL and Service/combatant command training requirements.

Policy and Standards Division

Training and Education Command's Policy and Standards Division (PSD) advises and represents Commanding General, TECOM as the authoritative source for training standards in support of the warfighter. In support of this broad role, the division also—

- Develops training and education policy to guide formal schools and unit level training.
- Develops Service-level, joint, and North Atlantic Treaty Organization doctrine.
- Manages the review, update, and revision of individual and collective T&R standards.
- Manages Marine Corps skills programs.
- Reviews and validates programs of instruction.
- Validates formal school training requirements and manages training quotas.
- Provides input to the Human Resources development process (as outlined in the MOS Manual).
- Supports emerging training requirements to ensure Marines are prepared to meet the challenges of present and future operational environments.
- Provides oversight of training and education assessment and evaluation programs and initiatives.

The PSD T&R analysts (also referred to as "training and education integrators") support standards development through the management of ground and aviation community T&R manuals, and they work closely with community SMEs to standardize training simulation and simulator events that support both individual and collective training.

Plans Staff Section

Reporting to Commanding General, TECOM, the plans division leads coordination of TECOM's science and technology efforts and, more specifically, the TECOM Science and Technology Working Group. Through these efforts, the G-5 enables TECOM headquarters to capitalize on emerging science and technology opportunities.

MAGTF Staff Training Program Division

The MAGTF Staff Training Program Division coordinates closely with local BSC, which are described at some MEF locations as TECG (e.g., III MEF) and provide training in MAGTF warfighting skills, usually within the context of a Joint and combined environment, to improve the warfighting skills of senior commanders and their staffs. The division provides support to MAGTFs and their major subordinate commands through warfighting seminars, Marine Corps Planning Process planning practical applications, CPXs that permit the validation of an operations order—usually in a constructive, MAGTF tactical warfare simulation environment, and AARs. From a SATE perspective, the division's support to higher-level MAGTF staffs is a training implementation and evaluation exemplar. Most notably, the MAGTF Staff Training Program Division process emphasizes the critical training elements of planning, briefing, execution, and debriefing that optimize training at virtually any level of collective or individual training, particularly in a simulation environment.

Marine Air-Ground Task Force Training Command/Tactical Training Exercise Control Group

The MAGTF-TC tactical training exercise control group hosts, designs and supervises the conduct of Service-level, live-fire and maneuver combined arms exercises to train battalion/squadron size MAGTF units in the TTP required to execute their core, and selected core-plus METs. The tactical training exercise control group coordinates closely with local TSB/TSC/TSD and BSC directors to integrate training packages, enablers, and simulations to support and refine combined arms and live-fire and maneuver proficiency for MAGTF element staff and major subordinate element personnel in conjunction with large-scale exercises (e.g., integrated training exercise, adversary force exercise, MAGTF warfighting exercise).

Training and Education Command Formal Schools

Simulations and simulators have an integral training role in the programs of instruction for many of the Marine Corps entry-level, professional military education, career progression, and functional resident formal schools.

EXTERNAL TO TRAINING AND EDUCATION COMMAND

Program Manager Training Systems, Marine Corps Systems Command

Located in Orlando, Florida, Program Manager Training Systems is the Marine Corps Systems Command's independent program manager assigned for acquisition and life-cycle support of designated Marine Corps ground training systems, devices, and training support services. Program Manager Training Systems contributes to the warfighting effectiveness of the MAGTF and maritime expeditionary forces by providing training support and developing and sustaining training systems and devices, to include Marine Corps ground simulation systems.

Deputy Commandant, Aviation

Marine Corps Order 3710.6A, *Marine Corps Aviation Training System (ATS)*, provides the policy and guidance through which Marine aviation has transformed its approach to funding, building, utilizing, and managing its training support systems and processes. The mission of Aviation Training System (ATS) is to develop a completely integrated training system across Marine aviation that links training cost with readiness to provide the MAGTF commander with combat-ready units. The ATS structure centers on the MATSS located at each Marine Corps air station and joint reserve base for USMC Reserve aviation units. The Marine Corps' ATS provides key components to a comprehensive and fully integrated training system that optimizes and sustains standardized training at each Marine aircraft wing. The ATS will continue to evolve to support Marine aviation's training contributions to the air combat element, other elements of the MAGTF, and future expeditionary commands as appropriate.

To accomplish their integrated training system mission, ATS—

- Incorporates simulation devices, academic instruction, and facilities.
- Assists with defining procurement and modification requirements leveraging the training management process.
- Assists in the evaluation and certification of aircrew and aviation ground personnel.
- Assists with coordinating and executing the Flight Leadership Program and Combat Leadership Program.
- Provides training support across Marine aviation that produces a properly trained air combat element for the MAGTF and future expeditionary commanders.

An ATS mission execution develops a more completely integrated training system across Marine aviation that—

- Links training costs to readiness to provide the expeditionary commander with combat ready units.
- Facilitates T&R program satisfaction.
- Ensures simulation/training device readiness.
- Prioritizes the allocation of assets.
- Ensures aircrew and aviation personnel comply with standardization and evaluation requirements.
- Assists in facility and device management.
- Assists in the identification of training gaps for the justification of resources and solutions.

Under the operational control of the Marine aircraft wing commanders, each MATSS supports the consolidation and coordinated employment and sustainment of simulation assets (by community and aircraft type/model/series) and the integration of simulation training requirements. The MATSS provides Marine aviation with a current, responsive, and tactically

relevant training system for aircrew, aircraft maintenance personnel, C2 operators, maintainers, and aviation ground support personnel.

The ATS optimizes aviation training based on a SATE-derived curriculum using T&R manuals, exploiting the LVCTE and requisite courseware supported by the ATS/MATSS structure. Within this construct, aviation simulation training events are fully integrated into the various training curricula with an emphasis on enhancing live training, locally and through distributed mission training (e.g., networked training event). Technological advances leveraging simulation and networks have made stand-alone, section, division, and mission–level training a reality, and can lead to an effective and efficient methodology to achieve collaborative multi-participant training.

Marine Corps Installations Command

Marine Corps Installations Command provides the facilities and facilities support for simulators and simulations centers across the Marine Corps. They provide suitable infrastructure to support the operational requirements and security of Marine Corps home-station simulations systems. Marine Corps base and station personnel at locations where TECOM-funded simulations are located coordinate closely with local TSD/TSC/TSB/BSC organizations as well as with TECOM/Marine Corps Installations Command to logistically support and sustain simulation operations at each respective simulation location.

Marine Expeditionary Force, Division, Logistics Group, and Subordinate Unit Commanders

Ultimately, Marine Corps forces unit commanders are responsible for the training readiness and development of their personnel in accordance with applicable higher-level training policies and directives. Commanders at every level evaluate their unit's mission, assess and refine their critical METs based on the training, exercise, and evaluation plan and any higher-level assigned missions. These commanders develop their METL and training plans to prepare for most-likely operational employment scenarios per the applicable training doctrine, policies, and appropriate T&R manual(s) for personnel assigned to their units. This responsibility includes maintaining an awareness of training ranges, systems, devices, and opportunities that can provide realistic training support, to include available simulations and simulators.

Marine Corps Forces Units

Marine Corps forces units must be ready to conduct a range of operations within the competition continuum on short notice. By unit type, each is responsible for training to their specific unit METL as it aligns to their core and assigned mission responsibilities. These units must train for combat, combat support, combat service support, or actions short of combat through a variety of means, to include simulated training.

All training is simulated to an extent to avoid unnecessary risk and to preserve the force for real-world combat or support operations. All LVC training must be designed to align with the unit training plan; well planned to develop individual and small unit skills into actual combat capability; led and supervised to ensure designed learning objectives are met; and assessed or

evaluated within the scope of desired training outcomes for the participants or for secondary training audiences the training may be supporting.

Units must apply a similar level of training focus, resources, and attention to simulation training as they do to actual field training to ensure time spent in a virtual or constructive environment develops skills and knowledge that supports the progressive execution of live training and higher level training objectives. This requires unit commanders and leaders to gain a thorough familiarity with the strengths, weaknesses, and capabilities of available simulation systems to effectively contribute to and support their training.

Marine Forces, Reserve

Marine Forces, Reserve units and individual mobilized augments are expected to join and integrate within the active force as seamlessly as possible. Reserve units are typically based out of home training centers that are generally more disparate and remote than most of their active component counterparts. Additionally, the amount of training time available is a small fraction of that available to Fleet Marine Forces units. Ironically, this dynamic only emphasizes the value of simulation training as it can facilitate meeting training standards despite the logistical and temporal training limitations of Reserve units and home training centers.

APPENDIX B.
Ground Simulator
Scheduling and Coordination

For more information on current simulations, specific locations, and local points of contact numbers, contact your local BSC, installation TSB/TSD office, or TSC as appropriate. Local points of contact and numbers are listed in ground community T&R manuals that leverage simulators to accomplish core and core-plus T&R events. The below Marine Corps Enterprise Network website URLs (uniform resource locators) and information are provided for additional reference.

Camp Pendleton, California

TSC/TSD/BSC: no current link(s) provided. I MEF G-3, Fires Effects Coordination Center, LVCTE Team physically located in Building 23194, Room 297 aboard Camp Pendleton.

MAGTFTC/Twentynine Palms, California

TSC/TSB/BSC: https://www.29palms.marines.mil/training/magtftcsims/

Camp Lejeune, North Carolina

BSC: https://www.iimef.marines.mil/Resources/II-MEF-Simulation-Center

TSC: https://www.lejeune.marines.mil/Tenant-Commands/Training-Support-Center-Camp-Lejeune/

III MEF/Okinawa, Japan

MCIPAC G-3/G-5: https://www.mcipac.marines.mil/Staff-and-Sections/Principal-Staff/G-3-G-5

Note: Contact III MEF ranges and training point of contact (range officer or range chief) for Camp Hansen-related simulation facility information.

TSC/BSC: Contact III MEF G37 for information related to TECG and Camp Courtney BSC.

Marine Corps Base Hawaii

MCBH Contact Information: https://www.mcbhawaii.marines.mil/Unit-Home/Contact-Us/Base-Phone-Directory/

> *Note:* Combat Simulation & Devices: (808) 257-1110
> Range & Training Area Scheduler: (808) 257-8816

Marine Corps Base Quantico, Virginia
TSC: https://www.quantico.marines.mil/Offices-Staff/G-3-Operations/Range-Management-Branch/

APPENDIX C.
Simulation Small-Unit
Training Considerations

This section provides the unit training leader from the squad to the platoon with the rationale for incorporating simulation into a generic repeatable training approach that can and should be applied in most, if not all, training progressions—be it live, virtual, or constructive. Application to simulation training is limited primarily by individual or unit access to a training simulator or simulation system appropriate for conducting the desired category of training.

THINKING ABOUT HOW TO CONDUCT SIMULATION TRAINING

Marine Corps Tactical Publication (MCTP) 7-20A, *Unit Training Guide* (formerly MCTP 8-10A, *How to Conduct Training*), provides guidance to assist units and training leaders by recommending techniques and best practices for conducting Marine Corps training. Within the five-phased SATE process, lower level individual and collective unit-level training is primarily conducted during the "*implement*" and "*evaluate*" phases. However, when a unit assesses the strategic value of its overall training effectiveness, one quickly sees that all unit-level event training can cumulatively provide measurable feedback and results in capability and readiness that are essential to the "*evaluate*" phase of the overall training program. This is an important point to understand, as a deliberate and standardized unit-level evaluation process is critical to the refinement and improvement of a unit's training execution and its overall philosophical approach to standardized training. How a unit integrates, assesses, and evaluates simulation within its training plan should be a key consideration in its overall assessment and evaluation approach.

A unit's S-3 develops MET and T&R-based training plans that support the commander's vision for optimizing training readiness for most likely unit employment requirements. Attaining optimal training readiness requires aggressive execution of subordinate unit-, section-, and team-level training plans that meet the overall unit-level vision and intent. Ideally, a qualified and unit-designated training leader will be assigned for each discrete or group of related training events to ensure training consistency and quality throughout, particularly if the training will cover more than one day.

A *unit training leader* for a discrete training event is the on-site unit Marine who is specifically responsible for the successful conduct of a training event—this leader assesses individual, team, or small unit level performance and evaluates the degree of successful accomplishment of the training event against T&R standards and compliance with unit-level SOP. This individual

should be identified by billet, position, or designation/qualification/skill set and formally included on the training plan as being responsible for leading and guiding Marines through a specific live or simulated training evolution. For simulation events conducted at the small-unit level, the S-3/company staff should identify a responsible training leader who plans, briefs, leads the execution and debrief, and ensures the documentation of training completion.

The training leader should leverage the PBEDD approach from the moment he/she develops or becomes aware of the requirement to lead a live or simulated training event (or a series of training events). As the training event leader, the training leader must ensure complete understanding and mastery of event logistic and execution requirements—from training purpose, METs supported, and T&R event codes/requirements as applicable to the detailed event planning and preparation. The training leader is responsible for ensuring participants successfully accomplish scheduled training tasks, along with any post-training debrief and documentation requirements. Units that inform and assign a capable and qualified training leader to lead simulation training events find greater return on investment for the training time allotted. Experienced training leaders can and should provide guidance and supervision for small unit leaders who are new to this role to ensure a common level of understanding that aligns with the commander's intent for simulation training in support of the overall unit training plan.

Planning Considerations

At the unit level, planning occurs throughout all phases of the SATE process, from METL development to specific T&R event planning. For a discrete training event, the below questions will help a small-unit training leader frame the requisite planning and coordination requirements in order to develop a well-considered and effective training session. Considering the well-known acronym "BAMCIS" (begin planning, arrange reconnaissance, make the plan, complete the plan, issue the order, and supervise) in developing a training game plan is always appropriate in preparing for any training event, live or simulated. The below list, while not all encompassing, provides a range of potential items for planning considerations:

- What is the training requirement and what is the purpose of the training? How does it fit into the larger unit training plan and what part does it play in meeting the commander's training intent?
- What mission-essential task(s) does the training support?
- What T&R training events best support training accomplishment?
- Who will participate in the training? How many will participate? How many are doing the planned training for the first time and how many have completed this training before?
- For those who have completed this training before, are they current on the event(s) to be trained? Are they proficient?
- What is the skill level of the participant(s) before training commences, and what is the desired skill level at the end of training?
- What training goals will I attempt to accomplish, and how will I determine success? Do I want to accomplish one iteration of desired training goals, or do I anticipate my Marines may benefit from completing multiple iterations?

- What training resources do I need to procure, review, or plan to leverage prior to planning and executing this training?

- What simulator (if any) best supports the overall training requirement(s)?

- How far in advance do I need to schedule the simulator and coordinate with simulator site personnel to effectively communicate my training plan/event/METs/desires?

- With whom do I need to coordinate to schedule and plan the training event?

- Will site coordination require more than one visit or session?

- Once my pre-event coordination with on-site personnel is complete, have I effectively communicated my overall training desires and specific training requirements? Have I answered all questions and have my questions been answered sufficiently?

- Will I develop or use a performance evaluation checklist (PECL) or other assessment/evaluation tool to lead this training event? Have I shared that with the simulator site personnel during coordination?

- What will my specific role be during the training? Will I be observing or participating? Where will I be most effective, based on the developed training goals?

- How will I determine when the desired level of skill mastery is occurring and when/how to challenge participants with pre-planned situational challenges?

- Based on currency and proficiency, what level of challenges are appropriate to build confidence without exceeding trainee ability?

- How much training stress is appropriate, and what level of individual or collective performance would reflect negative learning?

- What simulator capabilities exist to challenge performance and better prepare my Marines for follow-on simulator or live training?

- Do I anticipate the need for a single iteration, or multiple iterations of training objectives to be successful? If multiple iterations, how much time is planned for training breaks, and where do we stage during those intervals? Were any debrief items discussed during these breaks, with learning applied on subsequent iterations in the same training evolution?

- How long will we be on site, and what logistical considerations do I need to consider to successfully accomplish the training (transportation, food, water, staging/security of gear and equipment, briefing aids, location/availability of heads/latrines, etc.)?

- Have I coordinated the use of briefing and debriefing spaces and materials?

- What is the training contingency plan (i.e., inclement weather, on-site power outage, transportation issues)?

- With whom do I coordinate on site in the event of a contingency, either prior to or during the training?

Briefing Considerations

- What simulator briefing capabilities/spaces exist to support a pre-event/post-event training brief/debrief? Have I coordinated and reserved their use?

- If no facilities exist (or are available during the training window) at the simulator location, where will I conduct/lead the briefing? What other options are available for conducting a

suitable pre-event briefing, and what materials, audio visual aids, or other available training aids do I need to provide?

- What are the transportation and space requirements for off-site briefing spaces if they are required to be coordinated?

- Do I need to coordinate off-site, pre-event spaces in the vicinity of the unit or barracks for event rehearsals or planning discussions with the Marines to be trained?

- What briefing format will I use or ask the Marines being trained to consider/use in briefing a specific training event?

- If a PECL or other assessment/evaluation tool is being used as an evaluative tool for an event, is it presented and discussed to provide some measure of the standards against which the training will be largely measured?

Execution/Debriefing Considerations

- Were my Marines adequately prepared to take advantage of available simulator facilities, capabilities, and resources in a manner that facilitated efficient training and no wasted time?

- If an order was issued in conjunction with the training, was it sufficient to provide Marines with the information they required to be successful?

- Did opportunities exist to properly observe and evaluate all objectives and requirements outlined and briefed to the Marines via a PECL or other assessment/evaluation tool (if used)?

- Were the Marines familiar enough with the training game plan that they could anticipate requirements and be prepared to leverage procedures, checklists, etc. appropriately?

- What issues arose during training execution that I did not anticipate? Consider event logistics, degraded simulator systems or capabilities (if any), or topics that should have been covered in greater detail in your pre-event planning or briefing at a minimum.

- Did the training accomplish all planned/desired training objectives? If not, why not? What changes in pre-event planning or coordination could have made a difference (if any)?

- What planning or training gaps were identified—individually, from a team execution perspective, or across the training audience—that a) detracted from the training; b) could/ should have been identified beforehand; or c) could not have been anticipated beforehand?

- Did the confidence of the Marines being trained increase during the course of the training? Has their readiness to perform learned skills progressed to the level of being ready for follow- on events? If not, why not?

- Did the simulation support the execution of tactics, techniques, and procedures?

- Did it enable the execution of small unit leadership and decision-making?

- Were any actions observed during the training that would have been considered unsafe during real-world training? Were those pointed out and covered adequately in a thorough debrief?

- What key decisions were made during the training? Were they anticipated as likely beforehand? How did participants respond to changing circumstances during the training? What lessons were gleaned from these experiences?

- What mistakes were made during training execution? What actions could have been taken to prevent those mistakes or preclude their future occurrence?

- What key lessons learned occurred with respect to TTP or immediate action execution?

- Did the simulation test the judgment of trainees?
- Did the simulation training pose ethical dilemmas that provided useful lessons learned?
- Did all trainees satisfactorily understand and accomplish the desired/required training objectives?
- Did all Marines trained get to participate in the training debrief and contribute in the training after-action process?
- Is remediation required for any participants?

Documentation Considerations

- Were the training event lessons learned and debrief items adequately captured and retained for unit use? How are PECLs (if used) reviewed, retained, and leveraged in the lessons learned process to improve the overall unit training process?
- Did the training leader and training participants participate in available simulator/simulation after-action results for the purpose of providing inputs to improve the simulation systems from a user perspective?
- What T&R codes were completed by which participants?
- Did the debrief provide trainees with the following information for inclusion in survey(s) or other after-action efforts: date, simulator trained on, total briefing time, total time trained, total time debriefed, METs, and T&R codes trained?
- Did the training leader follow-up adequately to ensure that actual T&R codes trained were documented in MCTIMS?

GLOSSARY

Abbreviations and Acronyms

AAR .... after-action review
C2 .... command and control
C2PC .... Command and Control Personal Computer
COA .... course of action
CPX .... command post exercise
G-2 .... assistant chief of staff, intelligence/intelligence staff section
G-3 .... assistant chief of staff, operations and training/operations and training staff section
G-5 .... assistant chief of staff, plans/plans staff section
MAGTF .... Marine Air-Ground Task Force
MAGTF-TC .... MAGTF Training Command
MCTIMS .... Marine Corps Training and Information Management System
MEF .... Marine expeditionary force
MET .... mission-essential task
METL .... mission-essential task list
MOS .... military occupational specialty
MSHARP .... Marine Sierra Hotel Aviation Readiness Program
OPFOR .... opposing force
S-2 .... intelligence officer/intelligence office
S-3 .... operations and training officer/operations and training office
SME .... subject matter expert
SOP .... standing operating procedure
T&R .... training and readiness
TECOM .... Training and Education Command
TTP .... tactics, techniques, and procedures

The following acronyms pertain to processes and entities specific to this publication series.
ATS .... aviation training system
BSC .... battle simulation center
CACCTUS .... Combined Arms Command and Control Training Upgrade System
DVTE .... Deployable Virtual Training Environment
FPC .... final planning conference
HST .... home station training
IPC .... initial planning conference
LVC .... live, virtual, and constructive
LVCTE .... live, virtual, and constructive training environment
MATSS .... Marine aviation training system site
MCTE .... Marine Corps training environment
MPC .... mid-planning conference
MRX .... mission rehearsal exercise
MSEL .... master scenario event list

OCE .... officer conducting the exercise
PBEDD .... planning, briefing, executing, debriefing, documenting
PECL...performance evaluation checklist
PSD .... Policy and Standards Division
RTA ....ranges and training areas
RTPD .... Ranges and Training Programs Division
SATE ....Systems Approach to Training and Education
STIMB ....Synthetic Training Integration Management Branch
TECG .... tactical exercise control group
TSB .... training support branch
TSC .... training support center
TSD.. training support division
VBS... virtual battlespace

REFERENCES AND RELATED PUBLICATIONS

Joint Issuances

DOD Dictionary of Military and Associated Terms

DOD Modeling and Simulation Glossary

Other Instructions

Navy/Marine Corps Departmental Publication (NAVMC)
1553.1_   Marine Corps Instructional Systems Design/Systems Approach to Training and
                 Education Handbook

Marine Corps Publications

Marine Corps Supplement to the DOD Dictionary of Military and Associated Terms

Marine Corps Doctrinal Publications (MCDPs)
1   Warfighting
7   Learning

Marine Corps Warfighting Publication (MCWP)
5-10   Marine Corps Planning Process

Marine Corps Tactical Publication (MCTP)
7-20A   Unit Training Guide

Marine Corps Reference Publications (MCRPs)
7-20A.1   Training Plan Design
7-20A.2   Event and Exercise Design
7-20A.4   Evaluations and Assessments
7-20A.5   Training Data Management

Marine Corps Order (MCO)
3710.6A   Marine Corps Aviation Training System (ATS)

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https://www.marines.mil/News/Publications/MCPEL/

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