PROGRAM MANAGER TRAINING SYSTEMS

PM TRASYS

PRODUCTS AND SERVICES CATALOG

2013

TABLE OF CONTENTS

Message from the PM 4

PM TRASYS Mission 4

PM TRASYS Overview 5
- Training Systems
- Training Environments
- Training Support Services

Products and Services Chart 6

Liaisons 8

Products and Services 12

PM TRASYS Contact Information 47

Approved for Public Release.

MESSAGE FROM THE PROGRAM MANAGER

Col. Michael A. Coolican

Dedicated to the Warfighters and their combat effectiveness, PM TRASYS works to provide the United States Marine Corps with the proper training systems and environments needed to successfully train Marines for combat operations.

PM TRASYS is the acquisition and life cycle sustainment branch for the Marine Corps Systems Command (MCSC) that supplies the Marine Corps with its current training systems, environments and support services. As the force that has the ability to strike anywhere and at anytime, the Marine Corps is a force in readiness. Keeping that in mind, the mission of PM TRASYS is to develop, acquire, field and sustain the training systems that satisfy Marine Corps training requirements. We do this for both active duty and reserve Marines, at home or abroad. Working hand-in-hand with the Training and Education Command (TECOM), we provide the training capabilities that support the "long war".

Additionally, mutual respect and cooperation between PM TRASYS and our industry partners is the best way to ensure Marine Warfighters receive the Modeling, Simulation and Training (MS&T) products and support services they need to train, fight and win.

PM TRASYS is guided by the four priorities established by our Commandant, General James F. Amos:

1. We will continue to provide the best trained and equipped Marine units to Afghanistan. This will not change. This remains our top priority!
2. We will rebalance our Corps, posture it for the future and aggressively experiment with and implement new capabilities and organizations.
3. We will better educate and train our Marines to succeed in distributed operations and increasingly complex environments.
4. We will keep faith with our Marines, our Sailors and our families.

PM TRASYS MISSION

Improving the Warfighting effectiveness of the MAGTF and globally deployed Maritime Expeditionary Forces by providing training support and developing and sustaining training systems and devices.

PM TRASYS OVERVIEW

Program Manager Training Systems (PM TRASYS) is the Marine Corps Systems Command's independent program manager assigned for acquisition and life-cycle support of Marine Corps ground training systems, devices and training support services. Focused on the needs and visions of the Marine Corps as stated in "Vision & Strategy 2025," PM TRASYS designs essential training tools that will adhere to the rigid requirements of combat readiness. Understanding the importance of the force in readiness and expeditionary mindset concepts, PM TRASYS supplies the Marine Corps with the training tools used to prepare for the hard fight. Utilizing over 150 skilled staff members to design, build and maintain combat training systems, PM TRASYS' products and services prepare Warfighters on combat and cultural skills. At PM TRASYS we understand the Marine Corps' needs and visions and by providing training simulation systems, environments and support services, we are supporting Marines with their overall mission.

PM TRASYS provides products and services that are divided into three categories: Training Systems, Training Environments, and Training Support.

Training Systems are devices that are used to assist in the combat training and education of Marines. These devices span over a wide range of categories from virtual trainers and live ranges, to learning software and video review systems. Training systems provide the Marine Corps with the ability to host safer and more cost effective training methods. Currently, training systems are what make-up the majority of PM TRASYS acquisition and sustainment programs.

Training Environments are physical combat arenas designed to replicate real cities within the current areas of operation. These arenas combine training and support systems to create an atmosphere that is as immersive as possible. Within these environments Marines are often tested on their ability to work as an element while maintaining cultural awareness and combat readiness. These arenas are designed to test a Marines ability to utilize fighting skills while being placed under the stresses of noise, fatigue and weapon fire.

Training Support is what maintains and sustains all of the training systems and environments that are operated and designed by PM TRASYS. These services ensure that ranges, environments and simulators are kept up and running at all times. Training Support also provides role players and system operators. Training Support is the support portion of PM TRASYS and includes programs such as role players, field operations and live training systems support.

PM TRASYS
PRODUCTS & SERVICES

Training Systems

INDIVIDUAL TRAINING SYSTEMS

Tactical Wheeled Vehicle Trainers
- USMC - Operator Driving Simulator (USMC-ODS)/ Medium Tactical Vehicle Replacement - Training System (MTVR-TS)
- Logistic Vehicle System Replacement (LVSR) C15 Engine/Transmission Trainer

Infantry Trainers
- Indoor Simulated Marksmanship Trainer (ISMT)
- Precision Gunnery Training Systems (PGTS)
- Improved Moving Target Simulators (IMTS)

Family of Egress Trainers
- High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT)
- Modular Amphibious Egress Trainer (MAET)
- Submerged Vehicle Egress Trainer (SVET)
- Shallow Water Egress Trainer (SWET)

Supporting Arms Virtual Trainer (SAVT)

Minor Training Devices (MTD)

WOLFHOUND

COLLECTIVE TRAINING SYSTEMS

Family of Combat Convoy Trainers (FCCT)
- Combat Convoy Simulator (CCS)
- Virtual Combat Convoy Trainer-M (VCCT-M)
- Reconfigurable Vehicle Simulator (RVS)

Combined Arms Command and Control Trainer Upgrade System (CACCTUS)

MAGTF Tactical Warfare Simulation (MTWS)

Deployable Virtual Training Environment (DVTE)

Combat Vehicle Training System (CVTS) M1A1/ LAV/AAV

Close Combat Tactical Trainer (CCTT)

DISTANCE LEARNING/ CULTURE & LANGUAGE TRAINING

Marine Corps Distance Learning
- MarineNet Learning Management System (LMS)
- Learning Resource Centers (LRC)
- Content Servers
- Video Teletraining (VTT) Centers

3D Tools

Recognition of Combat Vehicles (ROC-V)

Operational Language and Culture Training System (OLCTS)

Language Learning Resource Centers (LLRCs)

Virtual Cultural Awareness Trainer (VCAT)

Cognitive Skills Training for Asymmetric Warfare

Training Environments

INSTRUMENTATION

Force on Force Instrumentation
- Integrated GPS Radio Systems (IGRS)
- Instrumented-Tactical Engagement Simulation System (I-TESS)
- Combat Vehicle-Tactical Engagement Simulation System (CV-TESS)

Exercise Control
- Range Instrumentation Systems Controller (RISCon)

Range Operations Center
- Integrated Range Status System (IRSS)

Live Training Collection Systems
- Tactical Video Capture System (TVCS)
- Automatic Performance Evaluation and Lessons Learned (APELL)

AVATAR

Aviation Range Instrumentation
- Multi-Static Dependent Surveillance (MDS) System

Target Systems
- Stationary Infantry Targets (SITs)
- Stationary Armored Targets (SATs)
- Moving Infantry Targets (MITs)
- Moving Armored Targets (MATs)
- Range Control Systems (RCSs)
- Location of Miss and Hit (LOMAH) Systems

Ground Range Sustainment Program (GRSP)
- Targetry
- Ballistic Protection
- Range Communications
- Bullet Traps

Battlefield Effects Simulations (BES)
- Pyrotechnic
  Omega 36/60
- Non-Pyrotechnic
  Explosive Effects Simulation: X02, X03, X04, OMG Badger – Machine Gun Simulator
- Marine Corps-Training Improvised Explosive Devices (MC-TIED)
- IMEESS Mounted/Dismounted (Improvised Munitions Explosive Effects Simulator System)
- Improvised Explosive Device Effects Simulator (IEDES)
- SES (Sound Effects Simulator)
- Dust Generator
- Smoke Generator

Training-Counter Radio Control Improvised Explosive Device (IED) Electronic Warfare (T-CREW) Surrogate Devices

Squad Immersive Training Environments (SITE)

COMBAT TRAINING ENVIRONMENTS (CTE)

Combined Arms MOUT (CAMOUT)

Home Station MOUT (HSMOUT)

Home Station Training Lanes

Ship on Land (SOL)

Atmospherics

Infantry Immersion Trainer (IIT)

AVIATION TRAINING

Aviation Training System (ATS)

Training System Certification (TSC)

Systematic Team Assessment of Readiness Training (START)

Systems Approach to Training (SAT)

Visual Databases

Simulation

Concurrency Management (CCM)

Training Support

TRAINING SUPPORT & SUSTAINMENT

Field Operations Support
- MAGTF Training Systems Support (MTSS)
- Security Cooperation Advisor Training - Advisor Training Group (ATG)/Advisor Training Cells (ATCs)
- Marine Corps Tactics and Operations Group (MCTOG), MCB Twentynine Palms, California

Training Systems Support
- Live Training Systems Support (LTSS)
- Range Training and Instrumentation Systems Support (RTISS) Warehouse

Role Players Support
- Marine Air Ground Task Force-Training Command (MAGTFTC) Role Players
- Home Station Training Role Players

PM TRASYS LIAISONS & TRAINING ANALYSIS

TRASYS Liaison Offices

PM TRASYS has liaison offices and staff at major Marine Corps Installations across and outside the continental United States to support customers and fielded training systems and training support services. PM TRASYS provides support through worldwide, regional, base and home station operations, logistics and maintenance contracts; and through personnel at the TRASYS Liaison Offices (TLOs). The TRASYS Liaison Offices are staffed with program management and technical liaisons that enable direct lines of communications with training systems customers, stakeholders and industry support contractors. The technical liaisons provide a wide range of direct support for fielded training systems and their operation. They also have the capability to support training systems development and installation. The TLOs provide the ability to perform quick response or emergency modifications, assist with engineering and training analysis and with the testing, acceptance and disposal of training systems.

TRASYS Liaison Offices are located at: Camp Lejeune, North Carolina (CLNC), Camp Pendleton, California (CPCA), Twentynine Palms, California (29 Palms), Marine Corps Base, Hawaii (MCBH), and Camp Hansen, Okinawa, Japan.

Aviation Training Systems Liaison

The purpose of Aviation Training Systems (ATS) is to develop and maintain a fully integrated training system across all of Marine Aviation. As members of Marine Corps Aviation Training Systems Federation (MCATSF), the Aviation Liaison directly supports NAVAIR Program Manager for Training Systems by ensuring that aviation training systems are current and relevant to satisfy training requirements. The Aviation Liaison division coordinates directly with Headquarters Marine Corps (HQMC) as the resource provider, and Aviation Training Branch (ATB) of Training and Education Command (TECOM) which is responsible for coordination and oversight of ATS in executing its mission. The Aviation Liaison division also works closely with members of the ATS in the following areas to deliver increased fidelity and capability in Marine Corps training systems:

- **Training Systems Certification (TSC).** The Marines at Naval Air Warfare Center Training Systems Division (NAWCTSD) are the Integrated Product Team leads for execution of the Systematic Team Assessment of Readiness Training (START) process toward the implementation of TSC. With the support of MAWTS-1 and Operating Forces Subject Matter Experts, the use of START will identify the capability of simulators and aviation training devices to support the platform Training and Readiness events.
- **Courseware.** The Aviation Liaison helps develop and deliver Systems Approach to Training (SAT) derived curriculum, electronic classrooms, and learning centers with the audio/visual assets required to instruct all resident student populations, as well as support distance learning curriculum.
- **Visual Databases.** Manage and direct the development and sustainment of visual source data from across the globe. These databases are being developed and maintained to support the Navy Portable Source Initiative (NPSI) which supports all USMC aviation platforms, providing a common database for all systems – further enabling different platforms to interact in a networked environment.
- **Simulation.** The Aviation Liaison works to procure and maintain a full spectrum of training devices such as Part Task Trainers (PTT), Aircrew Procedures Trainers (APT), Weapons Systems Trainers (WST), and Mission Task Trainers (MTT), with the fidelity required to support the Training and Readiness (T&R) manual. This includes the development and procurement of Marine Common Aircrew Trainers (MCAT), specifically designed and built for enlisted aircrew to train and coordinate real-time with the platform pilots in their respective simulators. The liaison division is also engaged in the planning, development, and integration of multiple systems into the Aviation Distributed Virtual training Environment (ADVTE) to support MAGTF and Joint Distributed Mission Operations (DMO).
- **Concurrency Management (CCM).** Since maintaining current and relevant training systems is vital to achieving effective training and combat readiness, the division supports the ATS by incorporating appropriate and timely changes to curricula, courseware, and training devices to ensure concurrency with operational systems and doctrine once change requirements are identified and validated in the CCM process.

Reserves Liaison

The PM TRASYS Reserves Liaison serves as the main entry point for the Marine Corps Reserve Component to PM TRASYS. This office was established in April 2004 in response to training requirements that emerged in the Marine Corps Reserves due to the Overseas Contingency Operations. The office directly supports the Commander of Marine Forces Reserve (MARFORRES) and the G-3 Training AC/S located in New Orleans, Louisiana. The Reserve Liaison in conjunction with the Product Managers (PdM) for PM TRASYS currently support training systems at 185 remote Inspector/Instructor (I&I), Reserve Centers through-out the United States.

In addition, PM TRASYS, in coordination with Marine Corps Systems Command Reserve Affairs, sponsors a Mobilization Training Unit – Marine Systems (MTU-MSYS) as well as an Individual Mobilization Augmentee (IMA) detachment. This is a MARFORRES administrative reserve program comprised of officers and enlisted Marines working on programs as subject matter experts and system analysts testing and evaluating Tactical Decision-making Simulations (TDS).

Services that this office provides or supervises include:

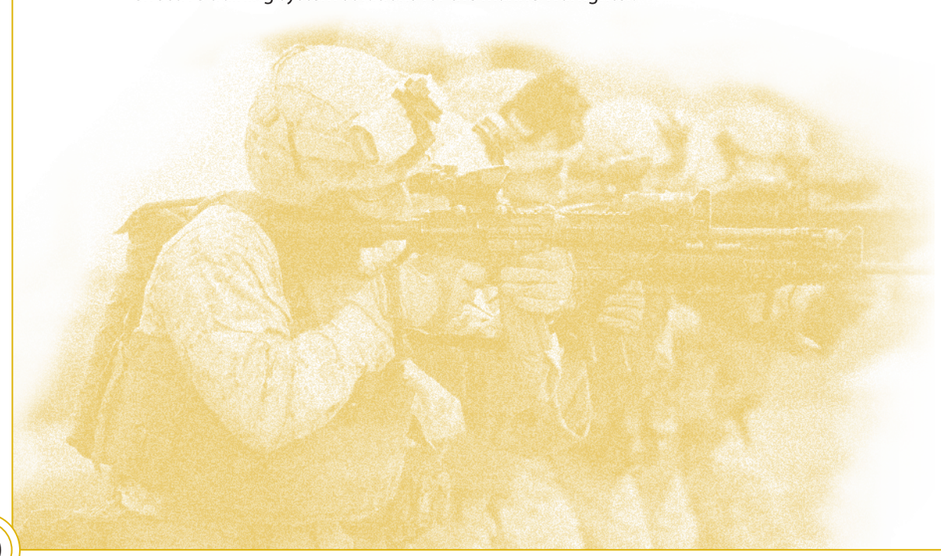
- **Requirements Analysis/Review**
- **Manpower and Personnel Analysis**
- **Contracts Support**
- **Training System Support Equipment**
- **Direct Engineering Support**
  Technical Data and Publications
  Data Management
  Software
  System Design
  Facilities engineering (planning / preparation)
  Testing and Installation
- **Procurement**
- **Training/Education Support for Training Systems**
- **Liaison to Military Procurement Offices (Army, Navy, Air Force)**
- **Industry Liaison**
- **Handling, Storage and Transportation**
- **Life Cycle Support / Planning**
- **Inventory Management**
- **Budget and Financial Management**
- **Maintenance Planning**
- **Supply Support**
- **Tactical Decision-making Simulation Support**
- **Minor Training Devices Support**

The following systems have been procured by the Reserve Liaison and fielded to MARFORRES:

- **Indoor Simulated Marksmanship Trainer- Enhanced (ISMT-E/XP)**
- **HMMWV Egress Assistance Trainer (HEAT)**
- **MRAP Egress Trainer (MET)**
- **Operator Driver Simulator (USMC-ODS)**
- **Convoy Trainers**
  Virtual Combat Convoy Trainer (VCCT)
  Reconfigurable Vehicle Simulator (RVS)
  Combat Convoy System (CCS)
- **Combat Vehicle Training Systems (CVTS)**
  M1A1 and LAV-25 Advance Gunnery Training System (AGTS)
  AAV Turret Trainer (AAV-TT)
- **Deployable Virtual Training Environment (DVTE)**
  Helmet Mounted Display (HMD)
- **Special Effects Small Arms Marking System (SESAMS)**
- **IED-Defeat Training Devices (IED-D)**

Training Analysis

The Instructional Systems Specialist (ISS) team represents the "Architects of Training Systems". They provide a range of Defense Acquisition, Manpower, Personnel, Training, Human Performance, and Human Systems Integration support to project and program Integrated Product Teams. The ISS domains provide the greatest "trade space" in the total life cycle cost of any system acquisition. The ISS team leverages its collective expertise to find cost, schedule and performance "trade space" that leads to producing and improving valuable, efficient and effective training system solutions for the Marine Warfighter.



INDIVIDUAL TRAINING SYSTEMS

Tactical Wheeled Vehicle Trainers

USMC-Operator Driving Simulator (USMC-ODS)/Medium Tactical Vehicle Replacement-Training Systems (MTVR-TS)

DESCRIPTION
The USMC-ODS (formerly MTVR-ODS) trains vehicle operators on multiple vehicle platforms to include two Mine Resistant Ambush Protected (MRAP) Variants. The trainer uses a manufactured cab with interchangeable dash sets that replicate the look and the functionality of the vehicle chosen for simulation. It also utilizes an appended armor kit to simulate the appropriate field of view for the vehicle selected. The systems are equipped with three-degrees-of-freedom (3-DOF) seat motion for the driver and 180 degrees of visual display via three electronic displays. Systems can be installed in a fixed location or delivered on a mobile trailer. Mobile systems also have the option of being purchased in a single (1) Student Training Station (STS) or dual (2) STS configurations. Current vehicles selectable on the USMC-ODS include: Medium Tactical Vehicle Replacement (MTVR), MTVR Armor System (MAS), Up-Armored High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), and Mine Resistant Ambush Protected (MRAP) Variants.

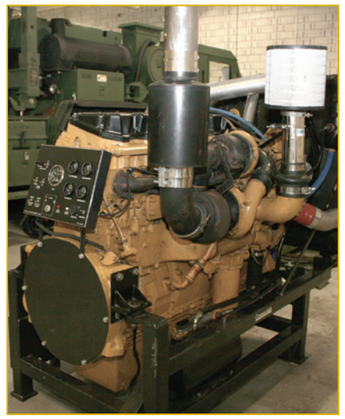
There are Contractor Logistics Support (CLS) representatives that serve as the primary operators and system maintainers at the active duty fielding locations. The Reserves rely on a Roving Technician to support the systems. The fielded legacy Medium Tactical Vehicle Replacement-Training System (MTVR-TS) located at Camp Johnson, North Carolina, and Fort Leonard Wood, Missouri, will be converted to a reconfigurable generic cab in FY12 and FY13. The 38 systems will be converted to establish a common baseline for all fielded ODS systems.

OPERATIONAL IMPACT
The USMC-ODS provides initial and sustainment training and can provide credit for 50 of the 251 miles required for an incidental operator license. Operator Driver Simulation Training is currently an Operation Enduring Freedom (OEF) Operational Requirement, an Operation New Dawn (OND) Operational Requirement and a Home Station Training Lane Requirement.

Logistic Vehicle System Replacement (LVSR)/ C15 Engine/Transmission Trainer

DESCRIPTION
The Logistics Vehicle System Replacement (LVSR) C15 Engine/Transmission Trainer will replace the current Marine Corps heavy tactical wheeled vehicle, the Logistics Vehicle System (LVS). As the Marine Corps' heavy tactical distribution system, the primary mission of the LVSR is to provide bulk transport within all elements of the Marine Air Ground Task Force (MAGTF). To train Marines on this new equipment, an engine/transmission trainer is being developed to replicate the engine and transmission loads being placed on the components outside the vehicle frame. This device will allow the full troubleshooting of diagnostic codes via the VADS (Vehicle Automotive Diagnostic System) by sending the codes to the computer to allow the full evaluation of the faults.

OPERATIONAL IMPACT
The LVSR C15 Engine/Transmission Trainer will become a critical component in the teaching of maintenance and troubleshooting skills necessary to maintain engine and transmission systems on heavy duty military vehicles. Incorporating the Vehicle Automated Diagnostic System (VADS), instructors will be able to simulate a multitude of scenarios that will challenge students to incorporate everything they've learned in a hands-on environment. The training provided by utilizing this tool will equip Marines with critical skills needed to improve the availability and reliability of the LVSR C15 Engine/Transmission Trainer and its ability to support each unit's mission. The LVSR C15 Engine/Transmission Trainer will be utilized by the Motor Transport Maintenance Instruction Company located at Camp Johnson, North Carolina, and incorporated into the Automotive Organizational Mechanic Course, future Journeyman's course, and the LVSR Maintenance Course.



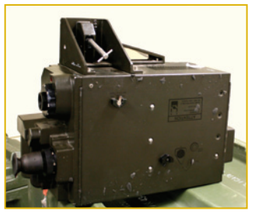
Infantry Trainers

Indoor Simulated Marksmanship Trainer (ISMT)

DESCRIPTION
The Indoor Simulated Marksmanship Trainer (ISMT) is a three dimensional simulation based trainer for indoor use, capable of instructing in basic and advanced marksmanship, shoot/no-shoot judgment, combat marksmanship, and weapons employment tactics. The trainer consists of an Instructor Station, audio/visual system, and weapons firing positions. Each firing position is capable of operating simulated weapons that includes AT4, M2 .50 cal, M9, M16A4, M16A2 Fully Sensored, M240G, M203, MK19, MP5, SAW, M870 12 gauge shotgun, SMAW, M224 60mm Mortar, M252 81mm Mortar, M4A1, SRAW (Predator), and Joint Services Combat Shotgun (JSCS). The ISMT has five firing positions. The Infantry Squad Trainer (IST) consists of three ISMT trainers connected as a single system providing twelve firing positions. A large display device provides simulated targets. The simulated weapons are used to fire upon the simulated targets with an indication of the round fired. The Instructor Station controls the training and provides feedback of the results. ISMT/IST also provide Forward Observer Spotting/Control of indirect fire and night vision training capabilities in addition to the baseline features. The ISMT/IST systems are used both within the Continental United States (CONUS) and Outside CONUS (OCONUS). The ISMT systems are deployed on US Navy ships. A 10 April 1998 Operational Requirements Document (ORD) exists validating the ISMT requirement. Additionally, this is an ACAT IV M Program.

OPERATIONAL IMPACT
The ISMT is utilized for remedial, virtual, instruction in basic and advanced marksmanship, shoot/no-shoot judgment, combat marksmanship, and weapons employment tactics. The system offers training to augment live fire in the following organic weapons systems: simulated AT4, M2 .50 cal, M9, M16A4, M16A2 Fully Sensored, M240G, M203, MK19, MP5, SAW, M870 12 gauge shotgun, SMAW, M224 60mm Mortar, M252 81mm Mortar, M4A1, SRAW (Predator), and Joint Services Combat Shotgun (JSCS). This program is required to continue to allow simulated training in myriad scenarios both at home-station, during Pre-deployment Training Program, and while on deployment.

Precision Gunnery Training Systems (PGTS)



DESCRIPTION
Precision Gunnery Training Systems (PGTS) is a tough, high-fidelity precision gunnery and tactical trainer for Tube-launched Optically-tracked Wire-guided missile (TOW) and Dragon weapon systems. 153 systems are deployed throughout the United States and overseas for the Marine Corps. The device attaches to the operational weapon using the day and Target Indication (TI) sights, providing faithful replication of weapon handling procedures. Simulated missile flight, visible through the weapon sights, responds realistically to gunner tracking inputs. PGTS delivers an unrivalled degree of realism and accuracy to TOW and Dragon gunner training. The launch sequence, time of missile flight and engagement results are faithfully displayed at all operational ranges to produce training transfer to combat of the highest quality. Target acquisition, tracking and firing performance are monitored in real time and recorded for after action review. PGTS is operated outdoors in demanding environmental conditions, fitted to ground and vehicle-mounted weapons, or fired from under armor. The system is compatible with Multiple Integrated Laser Engagement System (MILES) and all other direct fire weapon effects simulators, making it an essential component during force-on-force maneuver training at combat training centers.

OPERATIONAL IMPACT
The PGTS is utilized for preparatory, supplemental, remedial, virtual, instruction in basic and advanced anti-tank gunnery skills and weapons employment tactics. The system offers training when live fire is not possible. This program is required to continue allowing simulated training in a myriad of scenarios both at home station, during Pre-deployment Training Program, and while on deployments.

Improved Moving Target Simulators (IMTS)

DESCRIPTION
The Improved Moving Target Simulator (IMTS) simulates the tactical environment for close-in air defense through the use of the STINGER ground to air missile. It may be used by as many as three STINGER gunner trainees simultaneously to acquire, track, and launch the missile in benign, countermeasures, and background environments. These functions are accomplished through the use of the STINGER Tracking Head Trainer (THT). The training system uses images projected onto a hemispherical projection screen. The images represent fixed and rotary winged aircraft, (both friendly and hostile), infrared (IR) signatures of each moving target (proportional to type, range and aspect angle), simulated IR countermeasures of each moving target (with visual and IR emission), variety of terrain features and weather conditions such as fog, rain, and clear conditions. The simulator also has the ability to simulate battlefield sounds, aircraft sounds to include the capability for estimating the type, range and speed, all while recording objective scoring for each trainee's individual performance.

OPERATIONAL IMPACT
The IMTS is utilized for preparatory, supplemental, remedial, virtual, instruction in basic and advanced Anti Aircraft (AA) gunnery skills and AA weapons employment tactics. The system offers training in place of live fire due to low inventory of ammunition. This program is required to continue allowing simulated training in a myriad of scenarios both at home station, during Pre-deployment Training Program, and while on deployments.

Family of Egress Trainers (FET)

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Egress Trainer (HEAT)

DESCRIPTION
The HEAT project originated as a result of a FY06 Commandant of the Marine Corps (CMC) urgent initiative to provide Marines tactical vehicle egress training. The High Mobility-Multi-purpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT) provides a realistic and relevant training environment for Marines to train tactical vehicle egress procedures in various degrees of vehicle rollover through cab doors and turret opening. HEAT training provides the opportunity to experience the effects of a vehicle rollover, receive reinforcement of the importance of wearing a seat belt and demonstrate the procedures and effort levels required to execute vehicle egress. Marines could be rendered non-deployable should this training not be completed.

OPERATIONAL IMPACT
According to a study reported by *Helicopter World* (now *Defense Helicopter*) magazine in September 2000, "A person who is 'egress trained' stands a 250-percent greater chance of survival than an untrained occupant when faced with an egress emergency." The HEAT system training is a mandated requirement for all Marines prior to deployment to OIF and OEF. In 2007, USMARCENTCOM mandated roll-over training as a pre-deployment requirement. HEAT satisfies this requirement as documented in HEAT MCCDC SON December 07. This initiative created the requirement for HEAT systems for USMC use in Forward Operating Bases (FOB) and additional training systems to be provided for Pre-deployment Training Program at Mojave Viper, Marine Corps Air Ground Training Center (MCAGTC), Twentynine Palms, California, and other major USMC home stations. Future initiative includes a Mobile HEAT for MARFORRES allowing the HEAT to travel between Rear Support Unit (RSU) locations.

UNDERWATER EGRESS TRAINERS (UET): Modular Amphibious Egress Trainer (MAET), Submerged Vehicle Egress Trainer (SVET), Shallow Water Egress Trainer (SWET)

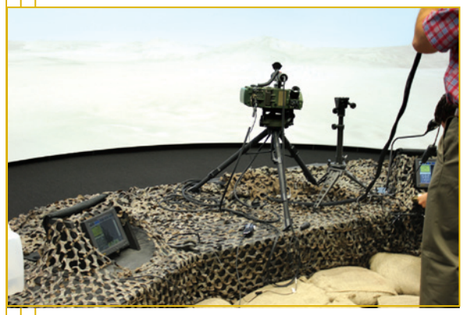
DESCRIPTION
The **Modular Amphibious Egress Trainer (MAET)** is an Underwater Egress escape Trainer (UET) with a generic fuselage section representing specific aircraft, amphibious, cockpits and cabin emergency escape exits. The MAET dunker functions closely to the general characteristics of a "ditched" aircraft. The MAET is capable of being lowered into a pool, and capable of being turned up to a 180 degree rotation on its longitudinal axis. Its lifting systems (hoists, gantries) provide, at a minimum, a two-speed rate of descent and retract. The students are able to practice underwater egress from the MAET as it is in an upright position, (zero degree rotation), an inverted position, (180 degree rotation), or in any position in between zero and 180 degrees. Current systems are able to simulate CH-46, CH-53 and MV-22 configurations and are adaptable to future platforms. Marines could be rendered non-deployable should this training not be completed.

The **Submerged Vehicle Egress Trainer (SVET)** is a UET that has the same modular core and rotational capabilities as the MAET, but dedicated for ground vehicle simulation. It is equipped with modules for the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) and a generic amphibious assault vehicle track platform (AAV).

The **Shallow Water Egress Training (SWET)** is an individual seat-type device used prior to and in conjunction with MAET and SVET to introduce water submersion and the proper use of current Supplemental Emergency Breathing Devices (SEBD) such as the Intermediate Passenger Helicopter Aircrew Breathing Device (IPHABD) and Survival Egress Air (SEA). New UUNS were released in August 2010 requiring UET from MRAP All Terrain Vehicles (MATV).

OPERATIONAL IMPACT
The purpose of the UET is to enhance operator and passenger survivability, regardless of platform or the causal factors that result in a rollover or submersion incident. The UET will provide a coordinated physical environment in which the mental processes taught in the classroom can be applied and practiced. This will serve to make an otherwise "unfamiliar" situation "familiar" should it be encountered through an unfortunate turn of events. Marines will learn to survive, egress, assist the egress of other passengers when necessary, and be mentally prepared for follow-on threats should they be present.

Supporting Arms Virtual Trainer (SAVT)



DESCRIPTION
The Supporting Arms Virtual Trainer (SAVT) will advance the training capability, operational readiness, and tactical proficiency of USMC Joint Terminal Attack Controllers (JTAC), Forward Observers (FO), and Forward Air Controllers (FAC). This virtual simulator provides personnel with training scenarios that require the placement of tactical ordnance on selected targets using Joint Close Air Support (JCAS) procedures and observed fire procedures. These scenarios will allow for practical application of Naval Surface Fire Support (NSFS), artillery and mortar fire, neutralization, suppression, illumination, interdiction, and harassment fire missions.

OPERATIONAL IMPACT
With recent USMC doctrine changes, Joint JTAC memorandum agreement and certification by Joint Forces Command (JFCOM) of the Navy's MSAT/SAVT, simulation events can replace 33% of USMC live fire Training and Readiness (T&R) and Joint Service currency training requirements.

Minor Training Devices (MTD)

DESCRIPTION
These items produced in the Minor Training Devices line provides instructional support to the Schools of Infantry, Recruit Depots, and support combat readiness by being available to other units through their local Combat Visual Information Centers. These training devices, models, mock-ups, and firearms enhance basic occupational and combat skills including tactics, weapons instruction and proficiency. In addition, ROTC students benefit from these training aids as they prepare for fleet operations through field exercises and physical fitness evaluations. The MTDs are designed to replicate the size, color, weight, fit and form of the actual corresponding weapon.

Typical Minor Training Devices:

- **M16A4 rifle**
- **AK-47 rifle**
- **RPG7 grenade launcher**
- **SVD rifle**
- **POMZ mine**
- **M249 rifle**
- **M9 pistol with holster**
- **PM50 pistol with holder**
- **EOD Kits**

OPERATIONAL IMPACT
MTDs provide the Marine Corps with realistic, hands-on training devices that allow for aggressive training without the risk of damage to expensive weaponry. They also allow future Marines to train and practice essential weapon skills without obtaining the required weapon qualifications.

WOLFHOUND

DESCRIPTION
WOLFHOUND is an electronic direction-finding tool that rapidly and accurately aids in locating radio emitters in Very High Frequency (VHF) and lower Ultra High Frequency (UHF) radio bands.

The features and benefits include:

- Game-changing capability
- Essential find-fix and finish tool
- Intuitive, easy-to-employ
- Mesh network on-the-move
- 100 – 500MHz
- Real-time location +/- 3º
- Real-time monitoring of audio
- Automated log and record
- < 20 lbs with batteries
- 24 hours with 1 X BA-5590
- Battlefield proven since 2007
- In production, fully supported
- UNCLASSIFIED system

The USMC is using systems currently deployed in theater by the US ARMY. PM TRASYS is fielding WOLFHOUND systems identical to those in theater to provide critical, pre-deployment training at the following sites:

- Twentynine Palms
- Camp Pendleton
- Camp Lejeune
- MCB Hawaii

PM TRASYS is working closely with Praemittias Systems LLC, the WOLFHOUND manufacturer, to provide the best possible fielding to enhance pre-deployment training. The Marine Corps Intelligence School via the Intelligence Training Enhancement Program is responsible for instruction on the system.

OPERATIONAL IMPACT
Train and equip Marine maneuver forces in the instantaneous and continuous visualization and exploitation of battlespace emitters in order to enhance the Commander's knowledge advantage, provide early warning and support targeting

COLLECTIVE TRAINING SYSTEMS

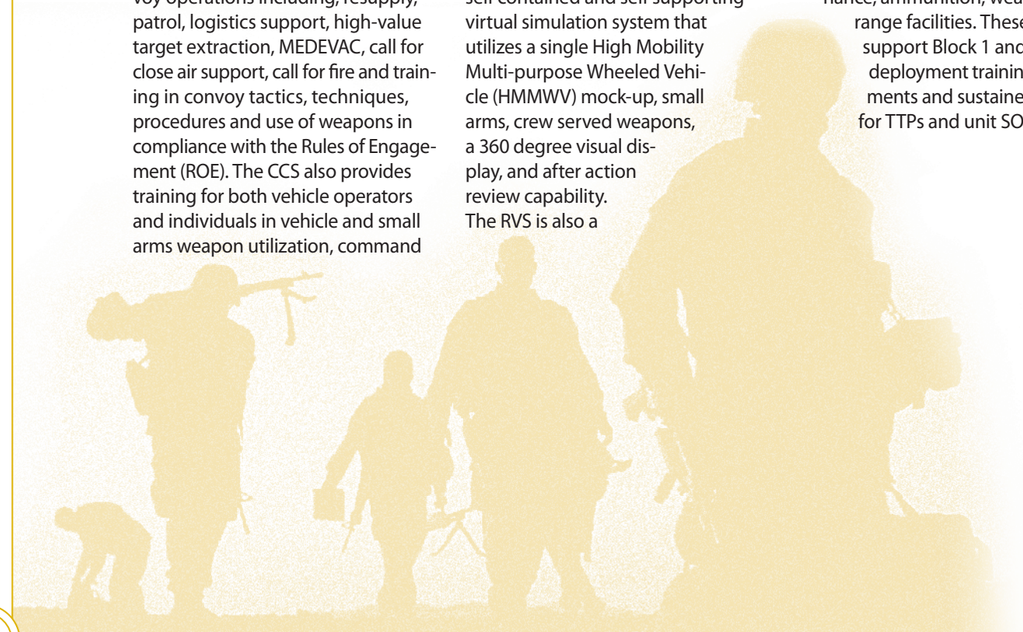
Family of Combat Convoy Trainers (FCCT)

Combat Convoy Simulator (CCS)
Virtual Combat Convoy Trainer-M (VCCT-M)
Reconfigurable Virtual Simulator (RVS)

DESCRIPTION
The **Combat Convoy Simulator (CCS)** is an immersive training environment for convoy operations to include basic procedures for driver, gunner and passengers in tactical scenarios related to combat operations. The simulator provides instruction in convoy operations including; resupply, patrol, logistics support, high-value target extraction, MEDEVAC, call for close air support, call for fire and training in convoy tactics, techniques, procedures and use of weapons in compliance with the Rules of Engagement (ROE). The CCS also provides training for both vehicle operators and individuals in vehicle and small arms weapon utilization, command and control, improvised explosive device (IED) attacks, response and countermeasures. CCS provides guidance for Marines to respond to ambush attacks and evolving enemy tactics in Military Operations on Urbanized Terrain (MOUT) settings.

The **Virtual Combat Convoy Trainer-M (VCCT-M)** and **Reconfigurable Virtual Simulator (RVS)** were procured by Marine Forces Reserve based on an urgent requirement. The VCCT-M is considered the first generation and the RVS the second generation of convoy trainers. These simulators train Marines in basic and advanced combat convoy skills using variable terrain and roads in a variety of weather, visibility and vehicle operational conditions. VCCT-M is a mobile, self contained and self supporting virtual simulation system that utilizes a single High Mobility Multi-purpose Wheeled Vehicle (HMMWV) mock-up, small arms, crew served weapons, a 360 degree visual display, and after action review capability. The RVS is also a mobile virtual simulation, but utilizes two HMMWV mock-ups, small arms, crew served weapons, and a 360 degree visual display in addition to relying on the VCCT-M after action review and instructor/operator station for managing training.

OPERATIONAL IMPACT
The FCCTs are immersive training systems that meet the immediate requirements to train Marines in basic and advanced skills during convoy operations. Using realistic simulation of combat conditions to include terrain, weather, visibility, vehicle operating conditions and opposing forces, the simulator places the entire convoy unit in an immersive environment and allows for repetition, review, and critique while saving time, maintenance, ammunition, weapons, and range facilities. These trainers support Block 1 and 2 Predeployment training requirements and sustained training for TTPs and unit SOPs.



Combined Arms Command & Control Trainer Upgrade System (CACCTUS)

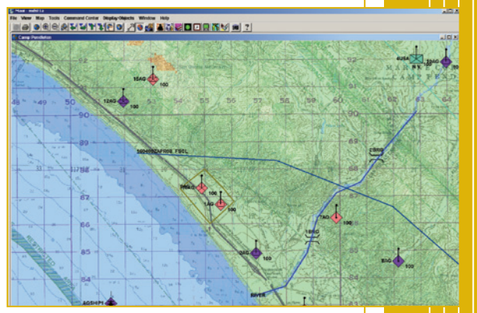
DESCRIPTION
The **Combined Arms Command & Control Trainer Upgrade System (CACCTUS)** is a combined arms staff training system that, when fully fielded will enable comprehensive Marine Corps staff, unit, and team training at home station Combined Arms Staff Training (CAST) facilities, and through distributed training involving CAST facilities across the Marine Corps. CACCTUS is an upgrade to the USMC's CAST that provides fire support training for the Marine Air Ground Task Force (MAGTF) elements up to and including the Marine Expeditionary Brigade (MEB) level. Using the system components and simulation capabilities, 2D and 3D visuals, interfaced Command, Control, Communication, Computers, and Intelligence (C4I), synthetic terrain, and an After Action Review (AAR), CACCTUS immerses trainees in a realistic, scenario-driven environment. The simulated scenarios enable commanders and their battle staffs to train or rehearse combined arms tactics, techniques, procedures and decision-making processes prior to any physical engagement. In addition, CACCTUS will provide training across live, virtual, and constructive training networks through interoperability with appropriate C4I systems in a training environment.

OPERATIONAL IMPACT
The CACCTUS will provide critical combined arms command and control integration and fire support coordination training to units leading up to and just prior to participating in live fire exercises and deployment.

MAGTF Tactical Warfare Simulation (MTWS)

DESCRIPTION
MAGTF Tactical Warfare Simulation (MTWS) is the Marine Corps' only aggregate-level constructive simulation system designed to support the training of Senior Commanders and their staffs in command and control processes and procedures. The system provides interactive, multi-sided, force-on-force, real-time modeling and simulation with stand-alone tactical combat scenarios for air, ground, surface, and amphibious operations. With interfaces to fielded Marine Corps C4I systems such as Command and Control Personal Computer (C2PC) and Intelligence Operations Server (IOS), MTWS provides the battle staff the ability to seamlessly train with and use their C4I systems during the execution of an MTWS supported training event. As part of the Joint National Training Capability (JNTC), MTWS is being integrated into the US JFCOM Joint Live Virtual Constructive (JLVC) federation in order to augment Combatant Commander (COCOM) and JTF level exercises with Marine Corps validated models.

OPERATIONAL IMPACT
MTWS is an automated exercise scenario driver with stop/backup and replay capabilities that can interface with tactical C2 combat systems. Weapons characteristics and parametric data are held in a dynamic data repository allowing simulation of real or constructive forces to include Air/Ground/Combat Service Support (CSS) and Command Elements. The central operational objectives of MTWS remain; Marine preparation for the integrated and automated battlefield, synthesis of combat information and graphical (digital) control/display of the battlefield in all phases. With the capabilities provided by MTWS, Marine units will gain significant combat training advantages.

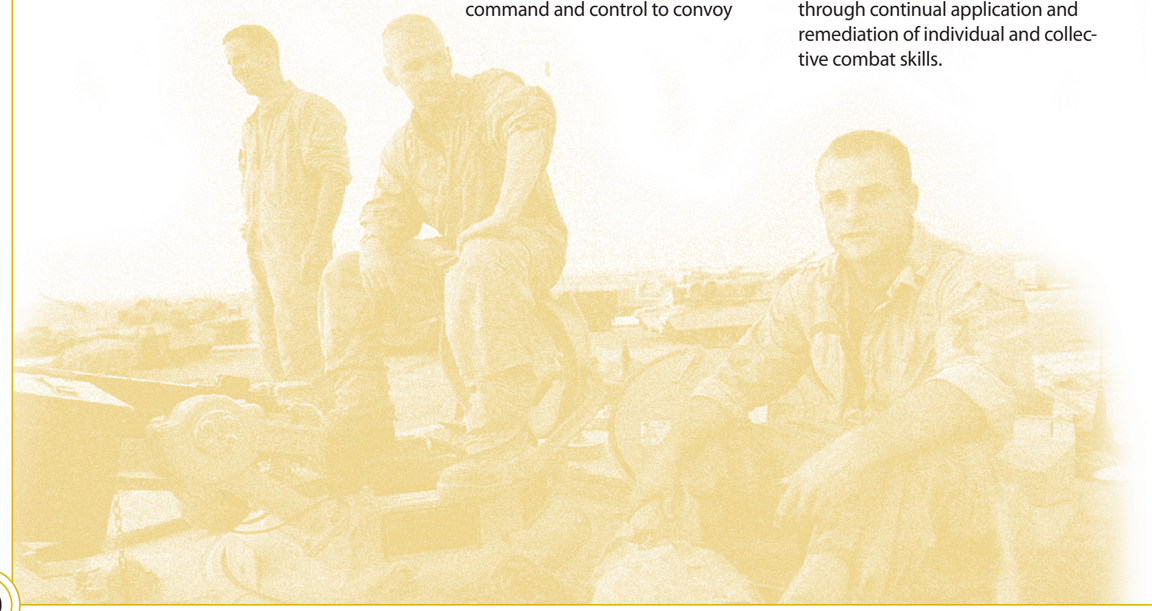


Deployable Virtual Training Environment (DVTE)

DESCRIPTION
The Deployable Virtual Training Environment (DVTE) is a laptop PC based simulation system capable of emulating organic and supporting Infantry Battalion weapons systems and training scenarios to facilitate Training and Readiness (T&R) manual based training. Its portable configuration allows Marines to train in areas where there are few options for training; garrison, aboard ship, at remote reserve locations, and deployed. DVTE training includes operational language and culture training, platoon and squad level tactics, employment of supporting arms, and various Recognition of Combatants (ROC) packages. DVTE is part of a Commander's "training toolkit" contributing to the building block approach to standards based training focusing on achieving an improved level of combat readiness.

The supporting arms component of DVTE is accomplished by the Combined Arms Network (CAN). The CAN is comprised of Assault Amphibious Vehicle, M1A1, Light Armored Vehicle, AV-8B and AH-1 connected to the Joint Semi Autonomous Force for training forward observers and forward air controllers. The CAN connects to select Marine Corps gear, Advanced Field Artillery Tactical Data System (AFATDS), Strikelink, and the Raven-B and Shadow systems, to allow training on a wide variety of fire-support and observer platforms. Another component of DVTE is the Virtual Battle Space 2 (VBS2), which trains Marines on everything from command and control to convoy standard operating procedures. VBS2 provides a three dimensional synthetic environment for tactical training required by Marines.

OPERATIONAL IMPACT
DVTE trains and reinforces MAGTF/combined arms coordination warfighting skills maintaining individual and unit readiness during periods of training while deployed or embarked. DVTE employs high fidelity terrain databases and realistic training scenarios to meet the main purpose of providing the primary achievement of DVTE; to facilitate T&R standards based training by providing training opportunities to small units up to the Battalion staff level. DVTE is employed as a training readiness tool by commanders to assist in evaluating individual and unit proficiency. In effect, DVTE is part of a commander's training "toolkit" and should be maximized, where and when appropriate to augment their training program. DVTE assists in maintaining their unit's proficiency and currency through continual application and remediation of individual and collective combat skills.



Combat Vehicle Training System (CVTS) M1A1/LAV/AAV

DESCRIPTION
The Combat Vehicle Training System (CVTS) – M1A1/LAV/AAV (CVTS-M1A1/LAV/AAV) provides gunnery and tactical training for the M1A1 Main Battle Tank, Light Armored Vehicle-25 (LAV-25), and the Assault Amphibious Vehicle (AAV). The M1A1 and LAV-25 requirements are satisfied by the Advanced Gunnery Training System (AGTS). The AAV requirements are satisfied by the AAV-Turret Trainer (AAV-TT). The AGTS and AAV-TT provide the ability to train M1A1, LAV-25, and AAV crew members to approved standards of combat skills and readiness. The end state systems are institutional, deployable, and table top (M1A1/LAV-25) systems supporting individual, collective (crew, section, and platoon), combined arms, and joint training scenarios.

OPERATIONAL IMPACT
The CVTS is one element of a training system made up of the academic, simulations and live-fire/range training. The CVTS family of trainers is used by Marine Forces Reserves (MARFORRES), Marine Forces Pacific (MARFORPAC), Marine Forces Atlantic (MARFORLANT), and formal schools to train perishable gunnery, crew communication and coordination, and mission tactic skills up to the platoon level. CVTS provides familiarization, proficiency, sustainment, and cross-training at each crew position and as a crew. AGTS is a land-based and shipboard training application. The AAV Turret Trainer is a land-based training system and trains gunnery skills to the section level.

Close Combat Tactical Trainer (CCTT)

DESCRIPTION
Close Combat Tactical Trainer (CCTT) is a system of manned modules and work stations that allow tank units to train armor collective tasks at the platoon through battalion task force level. Crews maneuver on the virtual battlefield in manned modules that replicate the individual crew stations for the M1A1. CCTT has multiple simulated terrain databases that include desert, temperate, and urban environments. The CCTT is made up of fourteen (14) Modules that allow 2nd Tank Battalion the ability to train up to a Battalion Level Mission Essential Tasks.

OPERATIONAL IMPACT
CCTT is a collective training program that supports training for the M1A1 Community, specifically located at Camp Lejeune, North Carolina (CLNC), due to lack of maneuver space and extremely high costs associated with a battalion level deployment for training to a venue that can support required conditions. Fielding is anticipated during the second quarter of FY14.

TRAINING SYSTEMS

DISTANCE LEARNING AND CULTURE & LANGUAGE TRAINING

Marine Corps Distance Learning

DESCRIPTION
Distance Learning (DL) (also known as MarineNet) provides the USMC E-Learning Infrastructure that enables Marines to receive vital training and education via the appropriate interactive media, when and where the learning is needed. DL provides Marines access to learning resources and performance support tools worldwide 24/7. DL also provides Distance Professional Military Education (DPME) programs to Marine officers and enlisted leaders. The vast majority of officers (CWO-Major) complete their PME requirements via DL onsite or online seminar programs. Enlisted DPME programs provide full or partial PME requirements for all enlisted leaders LCpl-GySgt. DL contributes to Marine Corps' operational readiness by developing and delivering required military occupational specialty, pre-deployment, language/culture, common skills and annual training as well as DPME courses. DL fills critical gaps in the training and education continuum, compensates for limited capacity of resident school houses and gives the commander a better-trained Marine while increasing personnel availability to accomplish the unit's mission. Various DL suites consisting of commercial-off-the-shelf hardware and software have been fielded to major Marine Corps bases and stations worldwide in order to best serve Marines everywhere.

DL components are as follows:

- **Centralized Learning Management System (LMS) for Student Administration**
- **Learning Resource Centers (LRC)**
- **Content Servers**
- **Video Teletraining (VTT) Centers**

Products available include:

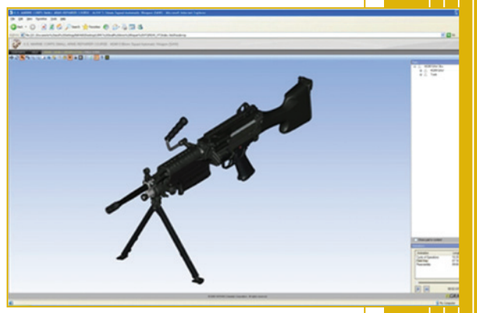
- Pre-deployment Training
- Required Annual Training
- Professional Military Education Courses
- Business Skills Courses
- Information Technology Courses
- Online Reference Material and Job Aids
- Online Testing

OPERATIONAL IMPACT
The Distance Learning (DL) Program contributes to the Marine Corps' operational readiness by providing all Marines with access to Military Occupational Specialty (MOS) and common skills training opportunities, Pre-deployment Training Program and Professional Military Education (PME). The online capabilities fill critical gaps in the training and education continuum and can reduce the amount of time Marines are required to be away from their home duty station in order to attend formal training. In general, Distance Learning gives the commander a better-trained Marine while increasing personnel availability to accomplish the unit's mission.

3D Tools

DESCRIPTION
Utilizing the latest 3D modeling software, the 3D tools program is enhancing the classroom environment by assisting in the teaching of maintenance procedures through virtual task training and equipment familiarization. 3D tools will provide enhanced maintenance training for various USMC individual and crew weapons as well as the Logistic Vehicle System Replacement (LVSR) and Light Armored Vehicle (LAV). The intent of this program is to provide students with a virtual hands-on platform that will allow them to assemble and disassemble equipment, perform maintenance tasks, and learn the principles of operations.

OPERATIONAL IMPACT
The 3D tools program will fill training equipment gaps; reduce schoolhouse throughput time, and material costs. In cases where there is not enough equipment for every student to practice on, the 3D tools program can provide a virtual task trainer that allows the student to have a high fidelity 3D model that exactly duplicates the configuration and functionality of the equipment being trained. Additionally, 3D tools will be used to enhance students' parts and maintenance procedure familiarization allowing students to grasp concepts faster. Because the USMC will own all software distribution rights to this highly portable software, this



valuable tool can be implemented at any stage of the learning process and can be further utilized during operations support.

Recognition of Combat Vehicles (ROC-V)

DESCRIPTION
Recognition of Combat Vehicles (ROC-V) is an interactive multimedia software package designed to teach Marines and soldiers how to recognize a vehicle through a thermal sensor and how to manipulate the thermal sensor to enhance the ability to identify a vehicle. Thermal sensors have become an integral part of the information systems used in the U.S. military. Most combat vehicles used by the military today have a thermal sensor on them. It is essential that the Marine or soldier is not only able to detect the enemy, but is also able to distinguish between a friendly vehicle and an enemy vehicle to avoid fratricide. ROC-V contains thermal signatures of US and non-US military combat vehicles. All of the images are real thermal images collected under field conditions. The imagery was collected at a number of different venues where the salient collection condition at all venues were fairly consistent and generally yielded FLIR images representing conditions of clear sky and mild temperatures. The images in ROC-V were collected using a variety of FLIR sensors, some performing better than others which accounts for the variations in image quality. The images in the modules and library are representative thermal imagery and are not meant to represent any particular sensor. The imagery in the control panel simulations will be more representative of the imagery as seen through that particular sensor. ROC-V has been converted to an interactive multimedia instruction course that is hosted on MarineNet.

OPERATIONAL IMPACT
ROC-V instructs Marines to recognize various battlefield enemy vehicles through visual and thermal recognition processes. This allows for combat identification of friend or foe and thus reducing incidents of fratricide.

Operational Language and Culture Training System (OLCTS)

DESCRIPTION
The Operational Language and Culture Training System (OLCTS) provides interactive language and culture training packages designed to shrink training time by utilizing computer-based interactive training with a common architecture that allows sharing of content across multiple training delivery platforms. This pedagogical framework supports continuous learning by Marines throughout deployment and mission planning cycles. The language and culture packages are available on desktop, laptop, web based, hand held and mission rehearsal training platforms. Trainees communicate using a speaker independent continuous speech recognition system, with animated characters representing local people in simulated mission scenarios. OLCTS is implemented on top of a commercial gaming engine, utilizing Situated Culture Methodology (SCM) and artificial intelligence technology. OLCTS packages are currently available for Iraqi, Pashto, Dari, Sahel French and Indonesian.

OPERATIONAL IMPACT
The OLCTS provides a repository and common framework for shared language and culture training packages relevant to Marine Corps operations worldwide. The system is designed to supply initial acquisition and sustainment of language and cultural instructions, enabling Marines to become culturally and linguistically adept to perform a variety of missions in foreign theaters.

Language Learning Resource Centers (LLRCs)

DESCRIPTION
Foreign language and culture instruction has become a critical part of the Pre-deployment Training Program (PTP) for Marine operating forces.

However, the Marine Corps cannot afford the time or expense to send every Marine through formal language training such as that offered at the Defense Language Institute (DLI). Instead the Language Learning Resource Centers (LLRCs) provide a cost effective platform for Home Station language and culture training. The LLRCs are state-of-the-art electronic classrooms specifically designed and equipped with the capability to provide language learning up to Defense Language Institute (DLI) Interagency Language Roundtable (ILR) Level 0+ (ILR 0+). The LLRC classrooms will accommodate up to 16 students and one instructor supported by appropriate computers, software, servers, multi-media equipment, unrestricted high speed internet connectivity, unrestricted foreign language television and radio as well as technical support. The LLRC program will provide for a curriculum of the most important languages and cultures of the highest priority geo-specific areas as determined by force commanders.

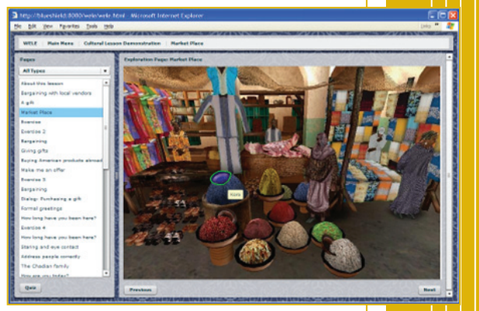
Overseas Contingency Operations (OCO), particularly when the focus of effort is counter-insurgency, nation-building, humanitarian or disaster relief, shaping operations or other operations that could be termed "irregular", require emphasis on knowledge of foreign cultures (operational culture learning) and foreign languages.

OPERATIONAL IMPACT
The LLRCs provide a permanent, fully integrated operational language and culture training capability to Marine Corps operating forces at the largest bases/stations for the foreign languages most needed and used by Marines across the spectrum of operations.

Virtual Cultural Awareness Trainer (VCAT)

DESCRIPTION
The Virtual Cultural Awareness Trainer (VCAT) sponsored by the United States Joint Forces Command (US JFCOM) is a SCORM 2004 compliant, web-based, cultural awareness training game integrated with the Atlas Pro learning management system and delivered via Joint Knowledge Online (JKO) and MarineNet. VCAT provides immersive training for joint warriors deploying to various areas around the world. Each VCAT covers multiple mission sets and multiple scenarios using Situated Culture Methodology (SCM). This methodology focuses on situated culture consistent with the five dimensions of "operational culture" used by the US Marine Corps Center for Advanced Operational Culture Learning (CAOCL). With the addition of a language component in 2010, new VCAT products with language capability are labeled as VCAT(L). Current VCATs cover The Horn of Africa, North Africa, and Afghanistan.

OPERATIONAL IMPACT
The VCAT provides cultural awareness training for individual augmentees prior to deployment. The mission areas include civil affairs, security cooperation, and humanitarian relief missions for both junior and senior leaders. VCAT(L) provides cultural awareness training that enables Marines to become culturally adept to perform any mission, anytime and anywhere.



Cognitive Skills Training for Asymmetric Warfare

DESCRIPTION

PM TRASYS is conducting R&D to develop, deliver, and evaluate decision-centered training technologies for enhancing Marines' cognitive skills for Counter-Improvised Explosive Device (C-IED) operations at the small unit level. This work is in support of the Joint Improvised Explosive Device Defeat Organization (JIEDDO) mission focus. Successful negotiation of IED-rich environments, where the adversary is a complex insurgent network, requires heightened levels of human cognitive performance and perceptual skills. In this case, success is the recognition of IED threats and insurgent network activities before they can harm personnel, damage equipment, or disrupt mission goals. To seize the initiative in combating the potential threats, Warfighters have to be better cognitively equipped.

The Decision Training Toolkit for C-IED Skills is an integrated package grounded in cognitive task analyses that describe the general C-IED decision skills required across operational environments. It targets development of the Warfighter's ability to out-think a dynamic, adaptive enemy. The emphasis goes beyond training what to think, by focusing on tactics, techniques, and procedures, to training how to think, by concentrating on key decisions and judgments the squad is likely to encounter. With a focus on cognitive skills and principles of C-IED decision making, the Decision Training Toolkit maintains relevance to Warfighters now and in future operations. The Toolkit includes three products:

Insurgent Methods Training – Network Enhanced Training, or IMT NET, builds on its predecessor, IMT, with a perspective-taking approach to training. Marines role play insurgent networks fighting against American Forces to understand how insurgents operate across the terrorist planning cycle. **The Warfighter Scenario Design Tool** supports Warfighters and trainers in developing the framework necessary for decision-centered, cognitively authentic training scenarios in any mission environment. Users select tasks and decisions as training objectives, and receive scenario scripts and supporting materials. The **C-IED Assessment Tool** enables measurement of individuals' cognitive performance associated with C-IED skills, using Situational Judgment Tests.

OPERATIONAL IMPACT

The products developed will improve Warfighter decision skills, facilitate assessment of Marines' cognitive readiness for C-IED operations, and increase the effectiveness of subsequent live training exercises such as Mojave Viper. Training is designed to accelerate the basics of tactical decision making for our most junior leaders in areas such as understanding the enemy's motivations and capabilities, interacting with local civilians, understanding the terrain as it applies to C-IED operations, understanding timing, and employing one's own assets. Training materials target home station training, but are also relevant for use by the Schools of Infantry, Officer Candidate School, The Basic School, or Infantry Officers School.

INSTRUMENTATION

Force-on-Force Instrumentation

Integrated GPS Radio Systems (IGRS)

DESCRIPTION
The Integrated GPS Radio System (IGRS) is a developmental effort which supports the tracking of vehicles in open terrain by augmenting USMC vehicular Multiple Integrated Laser Engagement Systems (MILES) tactical engagement simulation systems with a GPS and RF based (VHF) tracking system. This system transitioned from 1996-2001 Marine Corps Warfighting Lab (MCWL) efforts to a Ground-Position Location Information (G-PLI) capability specifically designed for use at Marine Air Ground Task Force-Training Command (MAGTFTC) Twentynine Palms, California (29 Palms), across the fixed range infrastructure.

OPERATIONAL IMPACT
The Integrated GPS Radio System (IGRS) provides instrumentation which supports force-on-force or force-on-target training scenarios with combined arms effects and real time tracking of vehicles. This is a long range (20 km+) Position Location Information system which provides complete range coverage in open terrain generally with fixed infrastructure. This system was specifically designed to support 29 Palms open terrain exercises with 520 radio units and 274 vehicle kits. IGRS will be replaced by CV-TESS during Phase II of the I-TESS contract.

Instrumented-Tactical Engagement Simulation System (I-TESS)

DESCRIPTION
The Instrumented-Tactical Engagement Simulation System (I-TESS) is used to support direct force-on-force tactical engagement training. This system consists of the following type components: Small Arms Transmitter (SAT), Man-worn Detection System (MDS), Command and Control (C2 - mobile and portable versions), and Military Operations on Urbanized Terrain (MOUT) Building Instrumentation, and Simulated Battlefield Weapons. The SAT is used on multiple rifle types and machine guns. The MDS and range equipment provides the individual Marine direct force-on-force engagement adjudication and includes the ability to support instrumentation functions such as Position Location Information (PLI) reporting.

OPERATIONAL IMPACT
The I-TESS system is used in MOUT Facilities and Non-Live Fire Maneuver Ranges located at various Marine Corps bases and installations, providing the setting for the USMC Pre-deployment Training Program (PTP) and other type individual and company level training support. The Marine Corps has expressed a need to acquire and deliver training systems that provide real-time situation awareness, exercise control capabilities, and adjudicate indirect fire engagements so as to help facilitate the training exercise objectives. I-TESS collects the training actions/interactions of the Marines during the training exercise and the system has the ability to provide immediate access of collected data for After Action Review (AAR). I-TESS will provide (2,400) Manworn Detection System (MDS) devices to instrument the Marine Corps at MCB Quantico, Virginia (MCBQ), Camp Lejeune, North Carolina (CLNC), Camp Pendleton, California (CPCA), MCB Hawaii (MCBH), MAGTFTC Twentynine Palms, California (29 Palms), MCMWTC Bridgeport, California, with expected future deliveries to Camp Hansen, Okinawa, and MCB Guam.

Combat Vehicle-Tactical Engagement Simulation System (CV-TESS)

DESCRIPTION
The Combat Vehicle-Tactical Engagement Simulation System (CV-TESS) is mounted on combat vehicles to simulate realistic force-on-force training. This system will use laser, detectors, video and audio on M1A1 tanks, Light Armored Vehicles (LAV) and Amphibious Assault Vehicles (AAV) to simulate battlefield engagements with the vehicle's primary and secondary weapons as well as provide after action review to enhance gunnery proficiency without expending live ammunition.

OPERATIONAL IMPACT
CV-TESS will provide combat vehicle crews the ability to communicate, maneuver and engage against a real thinking adversary. Upon completion of the developmental efforts, CV-TESS will be fully integrated with the vehicle fire control system and require crew members to perform all duties exactly as they would in combat as well as providing the capability of mechanized units to train in real time combat simulations.

Exercise Control

Range Instrumentation Systems Controller (RISCon)

DESCRIPTION
The Range Instrumentation Systems Controller (RISCon) will be capable of monitoring real time live, constructive and virtual simulation exercises for the purposes of exercise control, data collection, analysis, and review. RISCon is being developed to streamline control of all Instrumentation systems through a single controller interface. Data is collected while monitoring, controlling, and recording the force-on-force or force-on-target engagements that occur in the battlefield environment. The purpose of this training system is to significantly enhance the training capability, operational readiness, and tactical proficiency of Marines in tactics, techniques, and procedures in support of both collective task training and exercise events. RISCon provides the capability to simultaneously support multiple training exercises. It provides objective data collection and analysis of unit performance in Force-on-Force (FOF), Force-on-Target (FOT), Live Fire (LF), and associated Command Post Exercises (CPX). RISCon integrates live training with other simulation environments to provide the doctrinally correct battle space and combat forces needed to provide tactical realism and battle-focused training across battlefield functions. The system can collate training feedback materials from varied training support and simulation systems to provide a comprehensive AAR package for associated training elements.

OPERATIONAL IMPACT
This system will be used for tracking Force-on-Force (FOF) systems, Integrated GPS Radio Systems Instrumented-Tactical Engagement Simulation System (IGRS-ITESS), receiving live video inputs from Tactical Video Capture System (TVCS), and providing an After Action Review (AAR) for Battalion sized elements and below.

Range Operations Center

Integrated Range Status System (IRSS)

DESCRIPTION
Integrated Range Status System (IRSS) provides an integrated situational awareness system comprised of a range management component, an air position location component for commercial and military aircraft, and a ground position location component, all of which are used in combination to control range assets. This system is a console in the Range Control room, generally with an air, ground and supervisor seat with large flat panel screens on the wall which show any of the screens the operator wishes to view there.

OPERATIONAL IMPACT
This system provides the Range Operations Center with real time positional data of ground and air entities. This allows for safer training by closely controlling and monitoring potential danger areas of live fire.

Live Training Collection Systems

Tactical Video Capture System (TVCS)

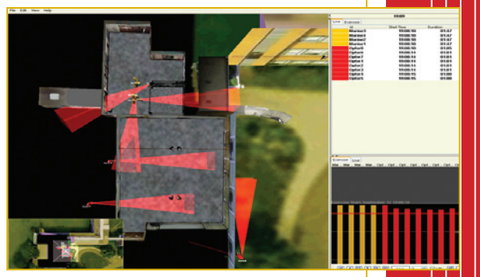
DESCRIPTION
The Tactical Video Capture System (TVCS) provides video-based Real-Time Visualization (RTV), Situational Awareness (SA), and After Action Review (AAR) capabilities to support Marine Corps live training. TVCS provides these capabilities through the use of an integrated software suite containing a Graphical User Interface (GUI), 2-D and 3-D displays, configurable video based alarms, and a unique video-stitching process that combines raw/captured video from multiple cameras into a single wide-panoramic view. The panoramic view and other system tools are used in real-time to observe the Marine's Urban Warfare tactics and highlight strengths and weaknesses for later use during both group and individual AAR evaluation sessions. TVCS provides performance feedback to Marines via immediate "Hot Wash", Full AAR, and/or a video Take-Home Package (THP) allowing for continued analysis of tactics, techniques and lessons learned.

OPERATIONAL IMPACT
TVCS provides the training cadre/instructors with comprehensive situational awareness of training activities performed in the urban environment. TVCS supports both day and night training in both indoor and outdoor facilities. The system allows for the storage, retrieval and playback of all audio and video associated with the training events without degrading on-going live recording capability. A combination of fixed and Pan-Tilt-Zoom (PTZ) cameras capture training activities and are then stitched together and superimposed onto a 3-D model of the training environment. TVCS provides an intuitive navigation capability allowing the operator to "fly" seamlessly in and around the training site to provide the best possible views of critical training activities for capture and presentation in the AAR. As Marines work to hone their instincts in the urban training environment, the real-time visualization capability provided by TVCS allows exercise controllers, in coordination with TVCS Operators, to provide timely feedback to training Marines, and provides a valuable tool to emphasize both positive performance as well as those tactics, techniques, and procedures which may require remediation.

Automatic Performance Evaluation and Lessons Learned (APELL)

DESCRIPTION
The Automatic Performance Evaluation and Lessons Learned (APELL) system is a Research and Development (R&D) effort which would allow for an automated, systematic method for improving team performance. APELL uses the video feed from Tactical Video Capture System (TVCS) tracing the Marines position throughout the exercise/building as well as the position of their head and weapon. The system will automatically track the Marine's skills, monitoring expected actions and timing with objective standards.

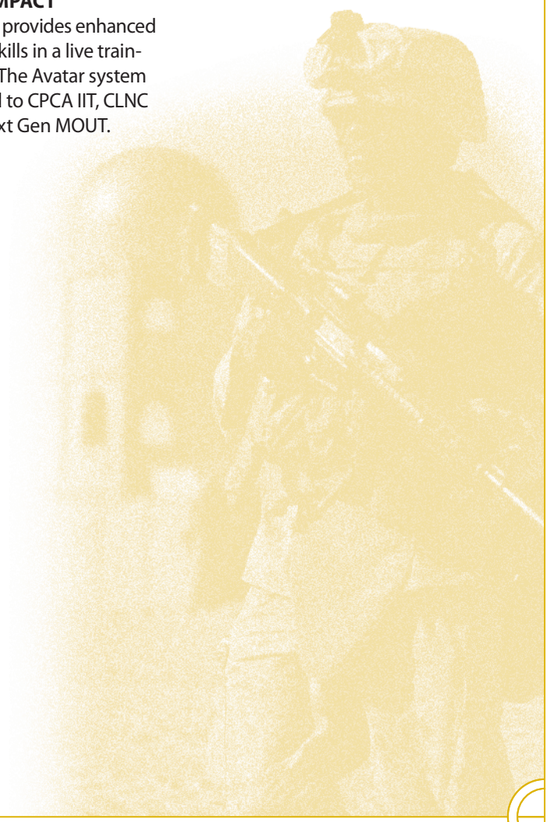
OPERATIONAL IMPACT
The system's purpose is to allow an automatic observation via video recording of desired responses versus actual, allowing the trainer to choose the metrics for the desired responses. This helps instructors to capture all actions and responses including subtle ones missed by the trainers during busy periods of action. This provides a more in-depth perspective of the training experience, giving access to all actions within and outside of the trainer's field of view.



AVATAR

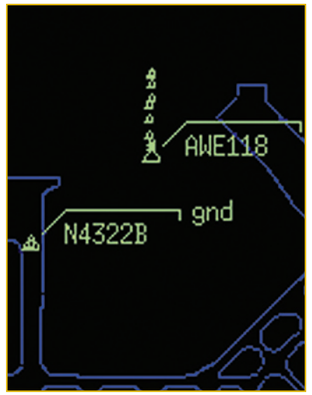
DESCRIPTION
The Avatar system provides a virtual terrain/environment with a virtual human or humans that interact with the trainee through shoot/no shoot decisions. The virtual terrain provided by the simulation enhances and augments the training through the extension of the physical room or providing environments that could not be replicated or are too costly to replicate within a building for specific training purposes.

OPERATIONAL IMPACT
The Avatar system provides enhanced decision making skills in a live training environment. The Avatar system is currently fielded to CPCA IIT, CLNC IIT and MCTAB Next Gen MOUT.



Aviation Range Instrumentation

Multi-Static Dependent Surveillance (MDS) System



DESCRIPTION
Multi-Static Dependent Surveillance (MDS) System provides precision surveillance and identification of all transponder equipped aircraft from an integrated system of transmitters and receivers located throughout the range at Twentynine Palms, California (29 Palms). The system provides a near real-time picture of the range airspace with aircraft positions from the deck to beyond the boundaries of R-2501, with position updates every second.

OPERATIONAL IMPACT
MDS provides two important capabilities to 29 Palms, California. First, it provides an integrated airspace picture, displayed on a range overlay, for use by range control to manage aviation assets operating within R-2501 airspace. With no blackout coverage associated with traditional radar, MDS gives controllers full situational awareness of aviation operations to include identification of non-military aircraft operating on the fringes of, or encroaching on the range, as well as military aircraft in danger from spilling out of R-2501. MDS also gives controllers the ability to alert pilots when they are about to encroach on hot ranges, as well as give traffic advisories when controllers see potential air to air conflicts. The system also alerts controllers to emergencies whenever an aircraft activates the emergency transponder code in order to immediately shutdown airspaces. The second and equally critical capability MDS provides is the digital data from aviation operations to reconstruct the air picture for an After Action Review. While MDS currently provides the data stream output required for this capability, it will not be available until MC-ITS integration is complete.

Target Systems

DESCRIPTION
Automated Targets is a subset under the overarching Range Training and Devices Portfolio (RTAP) Program of Record (POR) which is upgrading Marine Corps live fire training capabilities. Targetry has evolved to include stationary and moving pop-up infantry and vehicle targets, reactionary Friend/Foe targets and Hit/Miss Detection systems within modern MILCON ranges, MOUT Facilities, legacy, and non-traditional ranges. Automated Targets and accompanying Range Control Systems are fielded across all Marine Corps Bases and Stations.

Target Systems to include:

- **Stationary Infantry Targets (SITs)**
- **Stationary Armored Targets (SATs) including various types of vehicle silhouettes**
- **Moving Infantry Targets (MITs)**
- **Moving Armored Targets (MATs)**
- **Range Control Systems (RCSs)**
- **Location of Miss and Hit (LOMAH) Systems**

OPERATIONAL IMPACT
Marine Corps live fire, automated target systems continue to evolve by developing and fielding new capabilities that create a realistic Live-Fire Training Environment and

enhancing the quality of initial and sustainment live fire training and Marine combat training at all of our Marine Corps bases.

Ground Range Sustainment Program (GRSP)

DESCRIPTION
The Range and Training Area Management Division of Training and Education Command (TECOM) has partnered with PM TRASYS, Marine Corps Systems Command (MARCORSYSCOM) to establish the Ground Range Sustainment Program (GRSP). Its purpose is to sustain the continuity of Marine Corps training on Live Fire and Non-Live Fire Ranges through improvements or replacement of existing training devices such as, pneumatic target systems, known distance range (KD) target carriages, worn targets and replacement range control computers that cannot be accomplished within existing operating and maintenance (O&M) budgets. The maintenance of "state-of-the-art" range training systems supports current training requirements and this is the area where GRSP is most widely used. The cost of materials and installation for GRSP projects will not exceed $200K. CG, TECOM is the waiver authority for projects exceeding this amount. GRSP projects include:

- **Pneumatic, Electric, Steel Reactive and Non-Automated Targets**
- **Ballistic Protection: Shock Absorbing Concrete Blocks (SACON), Ballistic Steel and Rubber Blocks**
- **Range Communication Systems, Bullet Traps**

OPERATIONAL IMPACT
GRSP is the only program of its kind that was developed for the sole purpose of sustaining, upgrading and maintaining all Marine Corps Live

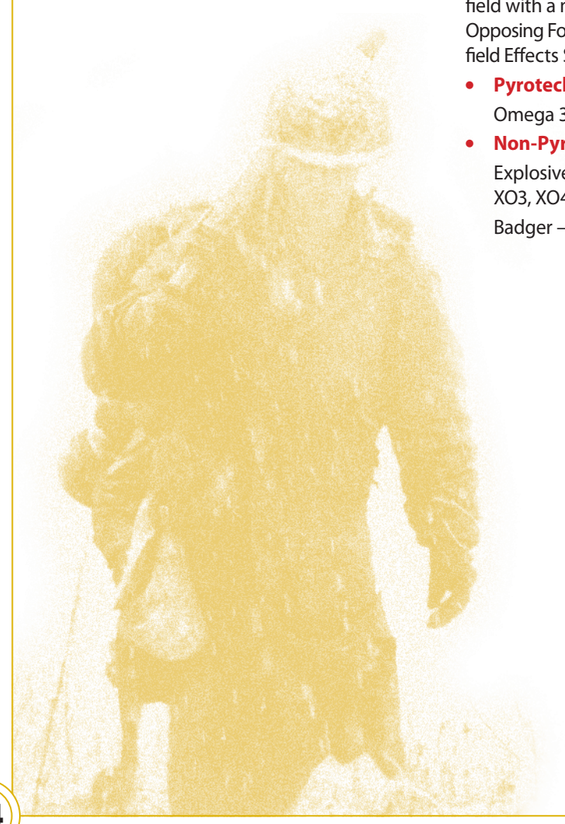
Fire and Non-Live Fire Ranges. The GRSP Program supports current, emerging and future Terminal Learning Objectives (TLOs) and Enabling Learning Objectives (ELOs) that allow Continental United States (CONUS), Overseas and Deploying Marines the ability to achieve and maintain the required level of Combat Readiness.

Battlefield Effects Simulations (BES)

DESCRIPTION
The Battlefield Effects Simulators (BES) Program provides safe real-time threat simulation for live training. BES is charged devices that are designed to recreate the sights and sounds of battle without jeopardizing the safety of those training. Non-Pyrotechnic Battlefield Effects Simulators (NPBES) provide devices for classroom instruction, static display items, and non-pyrotechnic IED training solutions using CO2 and powder to provide a realistic bang-puff IED detonation effect or an oxygen/propane with combustion tube. Pyrotechnic Battlefield Effect Simulators (PBES) are used in live and non-live fire training environments to re-create the battlefield with a more realistic and vibrant Opposing Force (OPFOR) threat. Battlefield Effects Simulations include:

- **Pyrotechnic**
  Omega 36/60
- **Non-Pyrotechnic**
  Explosive Effects Simulation: XO2, XO3, XO4, OMG
  Badger – Machine Gun Simulator
- **MC-TIED (Marine Corps Training IED) (Common Interface Device, 120mm, Pipe Bomb Simulator, 120mm, Remote Control Unit, Pressure Sensitive Land Mine Simulator))**
- **IMEESS Mounted/Dismounted (Improvised Munitions Explosive Effects Simulator System)**
- **IEDES (Improvised Explosive Device Effects Simulator)**
- **SES (Sound Effects Simulator) (Stand Alone and installed on ranges)**
- **Dust Generator**
- **Smoke Generator**

OPERATIONAL IMPACT
The BES project provides mission critical training to defeat and counter the threat of Improvised Explosive Devices (IED). by providing safe Training IED's: pyrotechnic and non-pyrotechnic. BES provides machine guns simulators, sound effects simulators and explosions simulators to produce a realistic training environment in the Military Operations on Urbanized Terrain (MOUT) and Home Station Training Lanes. The BES can also provide shoot back capabilities when integrated on the ranges.



Training-Counter Radio Control Improvised Explosive Device (IED) Electronic Warfare (T-CREW) Surrogate Devices

DESCRIPTION
The Training-Counter Radio Controlled Improvised Explosive Device Electronic Warfare (T-CREW) devices will be used to provide mission critical training to defeat and counter the threat of Improvised Explosive Devices (IED). These "surrogates" replicate the tactical operational CREW systems for use in training venues and significantly advances and enhances the training capability, operational readiness, and tactical proficiency of Marines in tactics, techniques, and procedures during employment of the operational CREW devices and subsequent Counter-Improvised Explosive Device (C-IED) measures.

OPERATIONAL IMPACT
T-CREW is a family of training systems that provide hands-on training simulation for the following tactical systems: Crew Vehicle Receiver Jammer (CVRJ), Man Portable System Surrogates (Thor III-T and QRD).

Squad Immersive Training Environments (SITE)

DESCRIPTION
Squad Immersive Training Environments (SITE) is an integrating training These environments will provide the commander training venues to better prepare infantry squads, while enhancing existing training systems that meet the essential training capabilities for small unit and squad leader development. SITE also provides centralized management and oversight for the small unit and squad training capabilities, with decentralized execution for development and fielding of individual increments. The program leverages efforts across the Science and Technology (S&T) community and provides means to aid the transition of the most technologically advanced capabilities into Programs of Record (POR).This allows SITE to:

- **Enable proper employment of Operational Weapons and Realistic Casualty Determination**
- **Provide realistic Battlefield Effects to set the conditions for maneuver**
- **Enable proper employment of operational equipment**
- **Support Infantry Squad Core Competencies**
- **Provide realistic environmental conditions for required geographic regions**
- **Provide realistic characteristics of a "Thinking" Opposing Force**
- **Provide realistic indigenous population**
- **Provide the ability to conduct Mission Planning and Rehearsal**
- **Provide realistic contemporary operating environment entities**
- **Provide stimulation of senses to enhance realism of training and support decision making**
- **Provide high fidelity After Action Reviews (AAR)**

OPERATIONAL IMPACT
Provides USMC Vision and Strategy 2025 - CMC Planning Guidance:

- Improve training and experience level for Maneuver Unit Squad Leaders
- Provide our Nation a naval force that is fully prepared for employment as a MAGTF across the spectrum of conflict

TRAINING ENVIRONMENTS

COMBAT TRAINING ENVIRONMENTS

Combined Arms MOUT (CAMOUT)

DESCRIPTION
Combined Arms Military Operations on Urbanized Terrain (CAMOUT) provides a realistic environment to support a variety of training tasks related to the deployment and maneuvers in an urban setting of a Marine Expeditionary Brigade (MEB) and its constituent elements. This enables MEBs to conduct training in an environment that resembles "real world" urban conditions. CAMOUT provides a challenging and complex urban training environment that replicates the difficulties units face as they communicate, coordinate, maintain situational awareness, navigate, and track urban operations.

OPERATIONAL IMPACT
Within CAMOUT, Marines are confronted with a full range of tactical challenges from humanitarian relief efforts, peacekeeping and law enforcement to direct combat that can be encountered in a complex urban setting within a relatively brief time frame or small physical area, known as the "three block war." This allows for today's Warfighters to practice their close combat skills without the risks associated with urban warfare.

Home Station MOUT (HSMOUT)

DESCRIPTION
The Overseas Contingency Operations (OCO) has established the need for Marines to conduct military operations in urban environments. The Home Station MOUT (HS MOUT) Training System has been established to meet this requirement.

OPERATIONAL IMPACT
Like the characteristics found within CAMOUT, HS MOUT incorporates "real world" conditions, which replicate close quarter urban environments commonly encountered within the theater of operation. These training systems include a variety of technologies and configurations to target various training scenarios and objectives.

Home Station Training Lanes

DESCRIPTION
Home Station Training Lanes are designed to provide counter Improvised Explosive Device (IED) training environments, which provide "real world" training challenges. These environments are constructed to include pedestrian and vehicle lanes for training on individual and unit (mounted/dismounted) IED awareness and reaction, route clearing operations and search techniques and procedures. In addition to the pedestrian and vehicle lanes, these training environments incorporate structures used to replicate urban environments experienced during route clearance and IED defeat missions. The structures replicate mosques, industrial buildings, schools, hospitals, government buildings and market places in an effort to provide an accurate representation of scenarios experienced within the theater of operation.

OPERATIONAL IMPACT
Home Station Training Lanes provide realistic close quarter IED scenarios that allow Marines the ability to hone skills in IED recognition and defeat. These training lanes are designed with "real world" lessons learned and are a critical training tool for preparing the Warfighter in current IED methods.

Ship on Land (SOL)

DESCRIPTION
Ship on Land (SOL) is designed to replicate a Landing Helicopter Dock (LHD) super structure that provides a live fire joint training platform. The intent of this structure is to create multiple real world maritime training scenarios based off of current events to prevent loss of life and provide immediate assistance to those in need on the high seas.

The structure will consist of all atmospherics typically found on an LHD within the fleet to include: Command/ Control Bridge, Primary Flight Control, Communications Room, Navigation Room, and Captain's Quarters. Additionally, platforms will be installed to permit vertical insertions. Initially, this structure will augment the existing LHD Deck in MCB Camp Lejeune, NC (CLNC).

OPERATIONAL IMPACT
Ship on Land provides training in a realistic environment that allows forces to prepare to combat the emerging and increasing threat of piracy.

Atmospherics

DESCRIPTION
The Atmospherics Program includes multiple set designs that come in variations of complex and basic design. The complex set design incorporates indigenous items that replicate a rural mid-Eastern/African village with emphasis on training objectives. The basic set design incorporates nondescript generic items (furniture, furnishings) with no emphasis on culture or geographical location. The program also includes streetscapes which provide billboards, as well as other items, to enhance the environment being replicated.

OPERATIONAL IMPACT
The Atmospherics Program enables Marines to train to real world urban environments by providing set designs modeled after mid-Eastern/African villages. Set designs include: indoor and outdoor marketplaces, faux food and vegetable stands, carts to display items for sale and trade, residential homes, hotels, facades, restaurants, police stations, religious sets (Mosque) and streetscapes.

Infantry Immersion Trainer (IIT)

DESCRIPTION
Infantry Immersion Trainers (IIT) are small unit training ranges consisting of urban structures finished and decorated to replicate geo-specific locations paired with integrated direct fire training systems, virtual simulation screens and windows, and video instrumentation for after action review. The indoor and outdoor mixed reality training environments highly replicate current operational theaters by stimulating the Warfighter's senses; in order to stress small unit actions and small unit leader tactical, moral and ethical decision making within the context of operational culture.

OPERATIONAL IMPACT
Infantry Immersion Trainers provide a small unit decision and rehearsal training range for Squad capstone training and evaluation in support of Pre-deployment Training Program Plan (PTP) Phase III. Training lessons learned are also collected to form requirements basis for the Marine Corps' future Squad Immersive Training Environment.

TRAINING SUPPORT

TRAINING SUPPORT & SUSTAINMENT

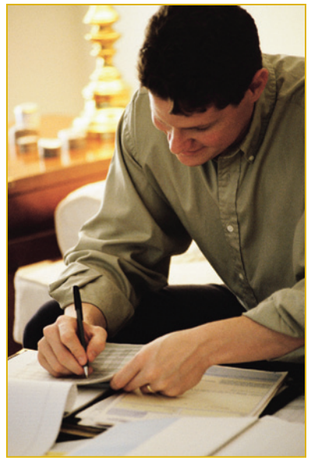
Field Operations Support

MAGTF Training System Support (MTSS)

DESCRIPTION

The MAGTF Training Systems Support (MTSS) services provide Pre-deployment Training Programs to USMC operating forces within the context of a Joint and combined environment to improve Marine warfighting skills. Realistic computer-based simulation training, Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance (C4ISR) training, Combined Arms Staff training, and a Deployable Virtual Training Environment capability for individual Marines through senior Marine Corps commanders and their battle staffs, is provided at multiple CONUS and OCONUS sites. MTSS services support Command and Control (C2) systems training across all warfighting functional areas of support, including Marine Air Ground Task Force (MAGTF). MAGTF MEF level Command Post Exercises (CPXs) or Mission Rehearsal Exercises (MRXs), scripted CPXs, war games and Field Training Exercises (FTXs) are supported with C2 systems instruction and system installation, operations and maintenance. The MAGTF Staff Training Program (MSTP) support provides; Command, Control, Communications, and Computer Mobile Training Team (C4 MTT) training at the functional and executive level to commanders and battle staffs, as well as technical training for operators and information managers. MSTP support also provides MAGTF Warfighting Seminars, Marine Corps Planning Process (MCPP) (instruction and practical application), MAGTF MEF level CPXs, MRXs, scripted CPXs, war games and FTXs.

Marine Corps C2 sustainment training is supported as provided solely at MAGTF Integrated Systems Training Centers (MISTCs). Installation, operation and maintenance supporting the simulation models, C4I and information systems, training applications and systems within the varied USMC programs of records and projects, include; MAGTF Tactical Warfare Simulation (MTWS), Joint Conflict and Tactical Simulation (JCATS), Joint Theater Level Simulation (JTLS), Corps Battle Simulation (CBS), Combined Arms Planning and Execution-monitoring Systems (CAPES), Joint Semi Automated Forces (JSAF), US Army One SAF, Combined Arms Staff Trainer (CAST), Combined Arms Command and Control Upgrade System (CACCTUS), Combat Analysis and Reporting Tool (CART), Deployable Virtual Training Environment (DVTE).



OPERATIONAL IMPACT

These support services deliver USMC wide capabilities essential to Warfighter readiness through virtual and constructive training of strategic, operational and tactical operations during Marine Pre-deployment Training Program. MAGTF Commanders are enabled to conduct simulation driven CPXs preparing their organizations with turn-key, scenario-based C2 systems training prior to real world deployment. The training provides mission critical services that support competency levels of Operating Forces deploying into Areas of Operation.

Security Cooperation Advisor Training – Advisor Training Group (ATG)/ Advisor Training Cells (ATCs)

DESCRIPTION
Security Cooperation Advisor Training supports the Marine Corps Pre-deployment Training Program (PTP) conducted at Marine Corps Air Ground Combat Center, Marine Air Ground Task Force Training Command (MCAGCC/MAGTFTC) Advisor Training Group (ATG) formal school and Advisor Training Cells in support of MEF home-station training. Security Cooperation Advisor Training support provides classroom, field and scenario-based training expertise, instruction and assessments and curriculum/training material input based upon Tactics Techniques and Procedures (TTPs) and advisor lessons learned from AO. Contractor provided Instructors/ Subject Matter Experts are provided to support all aspects of advisor training and assessment. The instruction imparts specific skills to the Military Advisor Team, other Advisors, and/or Individual augmentees as required, promoting student understanding of training material and achievement of USMC student mastery of team learning objectives. Contractor support is required to ensure transfer of USMC student knowledge and skills to the mission of teaching foreign national security force personnel.

PTP Advisor team training support provides instruction and coordination of classes and courses, development of lesson plans and technical input into the Concept of Operations and Course Content and Review Boards (CCRBs) and Operational Risk Management (ORM) assessments in accordance with NAVMC 1553.1 October 27, 2010, USMC Systems Approach to Training (SAT) User's Guide, OIF/OEF Pre-deployment Training Continuum [CMC (DCCDI) message 170023Z March 06], MCO 1553.2B Management of Marine Corps Formal Schools, Professional Military Education Schools and Training Detachments and MCO 1553.3A Unit Training Management.

OPERATIONAL IMPACT
This Program supports USMC Pre-deployment Training for Advisors and other Marines primarily deploying to Iraq and/or Afghanistan to hone their force protection skills and develop their ability to successfully work with partnered nation's forces in a Counter-insurgency (COIN) environment. Security Cooperation Advisor Training prepares Marines working with partnered nation forces through Instruction and Subject Matter Expertise supporting Blocks I-IV training. The specialized Pre-deployment Training of Advisors and other Marines requires the Advisors to transfer professional military skills and develop the capacity for coaching and mentoring partnered nation forces in a Counter-Insurgency (COIN) environment.

Marine Corps Tactics and Operations Group (MCTOG), MCB Twentynine Palms, California

DESCRIPTION
The Marine Corps Tactics and Operations Group (MCTOG) was activated in January of 2008 to provide advanced training to the Marine Air Ground Task Force (MAGTF) in support of operations, combined arms coordination and unit readiness. MCTOG provides unit level and staff training support, information technology and technical simulation support services at designated simulation sites and training facilities in support of live, virtual, and constructive standards-based training. The requirements identify the need to train and familiarize personnel with Marine Corps doctrine and C2 systems employed to support strategic, operational, and tactical operations in execution of MAGTF training in three primary areas:

- Command and Control (C2)
- Threat Emulation (TE)
- Training and Education Command (TECOM) Attack the Network (AtN) Training Team (TATT)

MCTOG TE and Exercise Development pre-deployment training tasks are intended to replicate contemporary and future threat scenarios in both seminar instruction and exercise execution. This includes the injection of a live, thinking, adaptive enemy – a true opposing force – into the exercise, to allow a carefully considered degree of free play; event execution and critique; providing comprehensive and realistic exercises to support battalion and regimental training, consisting of environments, scenarios, and threats tailored to the specific missions and battle spaces of deploying Marine Corps units.

Marine Corps Tactics and Operations Group (MCTOG), MCB Twentynine Palms, California *(continued)*

TATT was established to enable the Marine Corps to fill current operational capability gaps while, at the same time, enabling development of institutional capacity to continue to meet future training requirements. AtN is aimed at targeting and exploiting information on groups of individuals that plan, build and deploy improvised explosive devices (IEDs).

The Tactical MAGTF Integration Course (TMIC) is the primary mechanism by which the MCTOG conducts individual training. The contractor provided live, thinking, adaptive enemies – a true opposing force – into the exercise which allows a carefully considered degree of free play. To sustain and build upon this seminal opposing force, MCTOG requires a dedicated enemy force that is trained, studied, and practiced to support every Operations and Tactics Instructional Course (OTIC) Final Exercise (FINEX) iteration.

OPERATIONAL IMPACT
MCTOG will be the catalyst for the next generation of Marines to fully integrate joint, interagency, and special operations capabilities into full spectrum operations and expeditionary warfare. The mission of MCTOG is to provide advanced and standardized training in MAGTF operations, combined arms, and unit readiness planning at the battalion and regimental levels; and to synchronize doctrine and training standards for the Ground Combat Element (GCE) in order to enhance operational preparation and performance of GCE units. The supported training audience encompasses Marine Corps unit commanders and their staffs, the Marine Corps education establishment, Marines under training, developers of training systems, conceptual experimenters, and future evolving activities supporting the Marine Corps.

Training Systems Support (TSS)

Live Training Systems Support

DESCRIPTION
The Live Training Systems Support (LTSS) Services (formerly known as Range COMS), is a core funded program that provides continuous life-cycle support for fielded ground training systems including: simulation/training devices, live-fire ranges, Military Operations on Urbanized Terrain (MOUT), Infantry Immersion Trainer (IIT) and other support as directed. The LTSS project provides this support via firm-fixed price performance based contracts with commercial contractors. These contractors are responsible for operating and maintaining various training devices, facilities and ranges within a geographical area in support of Marine Corps and other service requirements. Virtually all USMC units utilize LTSS-supported ground warfare training devices/ranges at one time or another in preparation for deployment or in maintaining personnel/unit qualifications. The LTSS contracts cover all Major Marine Corps Bases globally.

OPERATIONAL IMPACT
LTSS provides the required operational and maintenance support services to maintain operational readiness of training assets necessary to meet the ground combat training requirements of the USMC.

Range Training and Instrumentation Systems Support (RTISS) Warehouse

DESCRIPTION
The Range Training and Instrumentation Systems Support (RTISS) Warehouse provides storage, issue and recovery, and maintenance support services for range training equipment to include: RTISS Instrumentation, Counter Improvised Explosive Devices (IED) and Special Effects Small Arms Marking System (SESAMS) training equipment. RTISS Instrumentation devices include Multiple Integrated Laser Engagement System (MILES) 2000, Deployable Instrumented Training Systems (DITS), Instrumented GPS Radio Systems (IGARS) and the new Instrumented Tactical Engagement Simulation System (I-TESS) man worn system that will replace MILES 2000. Counter IED training devices include Non-Pyrotechnic Battlefield Simulators (Non-Pyro BFX), IED awareness training aids/kits and Training Counter Radio-controlled IED Electronic Warfare (T-CREW) surrogate devices that replicate the look and operational characteristics of actual CREW systems. Available SESAMS equipment includes M-16/M-4 upper receiver kits and M-9 conversion kits and SESAMS personal protection equipment. The aforementioned uppers receiver kits and conversion kits utilize the 9mm SESAMS round. M-16/M-4 and M-249 Bolt kits for the new 5.56 SESAMS rounds are awaiting the completion of testing prior to being available for issue.

OPERATIONAL IMPACT
These services provide all required operational and maintenance support services necessary to meet the collective and individual training missions and exercise objectives of all training exercises involving RTISS Instrumentation, Counter IED training and SESAMS in support of the Warfighter. All simulated devices issued to our Warfighters emulate fit and form of actual weapons allowing for realistic and safe training.

Role Players Support

Marine Air Ground Task Force-Training Command (MAGTFTC) Role Players

DESCRIPTION
The Marine Air Ground Task Force-Training Command (MAGTFTC), at MCB Twentynine Palms, California (29 Palms), conducts Pre-deployment Training Program exercise events. Training consists of different elements within the Operation Iraqi Freedom/ Operation Enduring Freedom (OIF/ OEF) Pre-deployment Training Program (PTP) continuum. This training requires the employment of Role Players to act as Foreign Language Specialists (FLS) and civilians, insurgents, terrorists and other personnel encountered in the applicable theater of operations. Role Players are provided via commercial contracts with the flexibility to incorporate changes to training requirements that reflect the current cultural, political and tactical environment where the USMC will be deployed (to include deployments outside of OIF/ OEF). Role Player support under this contract extends to the Mountain Warfare Training Center (MWTC) in Bridgeport, California, and MCAS Yuma, Arizona. Due to the limited infrastructure of the 29 Palms area, contracts awarded for Role Players are for a total turn-key operation that includes labor, clothing, housing, food, and all services required for the contractors to perform required operations and other incidentals needed for the equipping and preparation of these contracted personnel to serve as Role Players during pre-deployment training operations.

OPERATIONAL IMPACT
Currently, the USMC's Pre-deployment Training Program prepares Marines to deploy in support of operations in Iraq and Afghanistan. The utilization of Role Players is an integral component of the USMC's Pre-deployment Training Program. The use of commercially contracted Role Players enhance war fighter readiness by allowing Marines to learn and reinforce training requirements with cultural accuracy in a completely immersive training environment while simultaneously offering flexibility to adapt to the ever changing USMC mission to include operations outside of OIF/OEF.

Home Station Training Role Players

DESCRIPTION
The urban battlefield has Marines encountering a myriad of activity. Host nation people, in their daily activity, is a typical site for Marines deployed world-wide. To re-create the battlefield and provide a more realistic training environment, PM TRASYS has acquired Role Players to be dispersed amongst multiple Marine Corps Bases and Stations. This training will require the employment of Role Players (RPs) to act as Foreign Language Specialist (FLS) and Civilians On the Battlefield (COB), insurgents, terrorists, and other personnel encountered in the intended theater of operations; as well as the replication of battlefield effects and inclusion of props. This training supports the Training and Education Command (TECOM) directed Pre-deployment Training Program Programs (PTP) and Alternate Training Venues for Commanders.

OPERATIONAL IMPACT
Role Playing efforts allow Marines to interact with culturally correct personnel during training. Exercise Planning tools are currently in development by the Range Modernization and Transformation program that will additionally track second and third order effects of interactions with Role Players, thereby adding even more depth to their present roles. These efforts help Marines

better understand small and large cause-and-effect relationships in theater and reinforce all aspects of cultural training delivered by other training venues.

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