Global Command and Control Systems-Integrated Imagery and Intelligence (GCCS-I3)

DESCRIPTION

GCCS-I3 provides software segment development and technical integration among the joint GCCS-I3 architecture, the USMC Intelligence Analysis System (IAS), and the Tactical Control and Analysis Center. Marines use GCCS-I3 software on the IAS to provide an analytical capability at all levels, from the battalion/squadron up to the Marine Expeditionary Force.

GCCS-I3 provides the operational commander with situational awareness, track management, imagery, and other intelligence data using a standard set of integrated, linked tools and services that maximize commonality via the Common Operational Picture across the tactical, theater, and national communities. GCCS-I3 operates in joint and service-specific environments and is interoperable and compliant with the Common Operational Environment that will facilitate the migration of USMC systems to the Global Information Grid Enterprises Services and Net-Centric Enterprise Services.

OPERATIONAL IMPACT

GCCS-I3 is the core software for the IAS, and works to ensure that the IAS software is interoperable with the Marine Corps' communication and data transmission systems. Several Marine Corps intelligence systems use GCCS-I3 as their core software and/or individual segments as major components of their software baseline, including:

- Technical Control and Analysis Center
- Topographic Production Capability
- Tactical Exploitation Group
- Counterintelligence/Human Intelligence Equipment Program
- Tactical Remote Sensor System
- Joint Surveillance Target Attack Radar System

PROGRAM STATUS

GCCS-I3 has several long-term and short-term goals to enhance the interoperability and procurement decisions for Marine Corps intelligence systems. In the long-term, this program seeks to achieve integrated, fully interoperable Marine Corps intelligence systems. In the short-term, the program seeks to establish a process and a corresponding set of procedures designed to allow the Marine Corps to make informed procurement decisions. GCCS-I3 has four mission areas: Administration and Infrastructure Support; Program Manager-Level Configuration Management Processes and Functions; Science and Technology Engineering Support; and Integration Support Team.

Joint Surveillance Target Attack Radar System (JSTARS)

DESCRIPTION

JSTARS is a long-range, air-to-ground surveillance system consisting of an airborne element and a ground element. The airborne element — the E-8C aircraft — is fitted with a large phased-array radar mounted on the fuselage and multiple operator terminals. Radar data are distributed via an encrypted, jam-resistant Surveillance and Control Data Link (SCDL) for transmission to one of two JSTARS ground systems: the Common Ground Station (CGS) or Joint Services Workstation (JSWS). The sensor suite provides detection and tracking data on targets through the use of the Moving Target Indicator (MTI), Fixed Target Indicator (FTI), and Synthetic Aperture Radar (SAR). FTI and MTI data are used to detect, locate, and identify the movement of enemy targets, while SAR identifies critical fixed targets such as bridges, harbors, airports, buildings, or stationary vehicles. The CGS is a ground-based receiving and processing display system that receives JSTARS data directly from the E-8C JSTARS aircraft through the SCDL to the Ground Data Terminal. Once JSTARS data are collected at the ground receiver site, MTI/FTI/SAR data are sent across the Marine Air Ground Task Force Command, Control, Communications, Computers and Intelligence network. The CGS is also capable of receiving and fusing imagery data from unmanned aerial systems directly with JSTARS data, providing an enhanced collection-processing capability. The JSWS is a functionally equivalent, transit-cased subset of the CGS.

OPERATIONAL IMPACT

The CGS and JSWS support a wide range of global missions including wartime battlefield management, peacekeeping operations, counter narcotics, and contingency operations. The CGS and JSWS are capable of operating in diverse geographic and weather conditions and provide an increased level of certainty to commanders. As organic Marine Corps intelligence assets, the CGS and JSWS have played a crucial role in current operations, resulting in JSTARS assuming an additional mission of Improvised Explosive Device prevention and detection.

PROGRAM STATUS

JSTARS is post-Milestone C in the Operations and Support phase. The Marine Corps has fielded three JSTARS CGSs and seven JSWSs. Each Marine Expeditionary Force has a CGS. The program is currently conducting two levels of effort: maintenance and upgrade of the current JSTARS ground systems; and research and development of future MTI collection capabilities in a net-centric environment as part of the DCGS-MC Enterprise.

Developer/Manufacturer:
Prime Hardware Integrator: General Dynamics C4 (GC4S), Scottsdale, AZ

Software Integrator: Harris Corporation, Melbourne, FL

Surveillance Control Data Link (SCDL) Developer: Cubic Defense Systems, San Diego, CA

Counterintelligence (CI) and Human Intelligence (HUMINT) Equipment Program (CIHEP)

DESCRIPTION

CIHEP consists of 12 modules to support the full spectrum of CI/HUMINT operational requirements. The suite includes imagery; commercial satellite communications; Very High Frequency, Ultra-High Frequency (UHF), and UHF tactical satellite communications; auxiliary power; automated data processing; and sensitive technical support equipment. All equipment is stored and transported in lightweight, modular, and deployable cases to facilitate task organization of equipment for assigned missions. The CIHEP Software Baseline is standardized among the computer assets in the suite and provides reporting, low-level analysis, communications, mapping, still and video image processing, and Common Operational Picture applications. It also integrates with the Intelligence Analysis System Family of Systems using the MarineLink application suite.

OPERATIONAL IMPACT

CIHEP enhances the HUMINT Exploitation Teams' (HET) ability to conduct HUMINT and CI operations and to accomplish other assigned tasks in support of Marine Air Ground Task Force missions at the tactical, operational and service levels. The equipment suite provides HETs with an organic capability to research collection requirements, process collected information, produce intelli-

gence reports, and disseminate those reports securely to supported commanders and intelligence officers. The suite also includes equipment to provide limited organic technical support to CI and HUMINT operations.

PROGRAM STATUS

In May 1999, CIHEP was designated an Abbreviated Acquisition Program of Record. A Limited User Evaluation was performed in March 2000, with a Milestone C production and fielding decision in April 2000. Initial Operational Capability was achieved in September 2001, with fielding of completed modules to the Marine Expeditionary Forces, Reserves, and the Navy and Marine Corps Intelligence Training Center. Full Operational Capability was reached in September 2002. The program was restructured in 2006, creating ten modules vice a single system. This streamlined program management by grouping equipment capabilities and enhanced logistics management and equipment task organization by unit mission. In 2008, two additional modules (media exploitation capabilities) were added, bringing the total to 12 modules. CIHEP is currently in a maintenance and refresh cycle, during which selected components of modules are refreshed. CIHEP continues to procure and field equipment to meet the demands of the total force structure increase, the Grow the Force initiative, and the addition of the Marine Special Operations Command. Of the 12 modules in CIHEP, ten are fielded exclusively to CI/HUMINT organizations at various levels of command. The Media Exploitation-Light module is fielded to both CI/HUMINT and Radio Battalion (RadBn) assets, and the Media Exploitation-Heavy will be fielded exclusively to the RadBns.

Procurement Profile:	FY 2010	FY 2011
Software Baseline:	1*	1*
Data Processing Module:	0	0
Advanced Imagery Module:	0	133*
Commercial Handheld SatCom Set:	95	0
Commercial SatCom Set:	235*	0
Tactical SatCom Set:	0	0
Tactical Handheld Communication Set:	0	0
Surveillance Comm Module:	0	120
Technical Support Set:	112*	112*
Technical Surveillance Module:	11*	11*
Vehicle Accessory Module:	0	0
Media Exploitation–Light:	203*	0
Media Exploitation–Heavy:	56	0

* Will refresh selected components

Developer/Manufacturer:
Ideal Technology Corp Orlando, FL; Klas Telecom, Inc., Washington, D.C.; Thales Communications, Inc. Clarksburg, MD; Harris Communications Corp, Rochester, NY; Panasonic Corp, Secaucus NJ; Automated Business Power, Gaithersburg, MD

Program and Logistics Support:
L-3 Communications, Stafford, VA; General Dynamics, Stafford, VA (ICE2); MTCSC Stafford, VA; SPAWAR Systems Center Charleston, Charleston, SC

Special Intelligence Communications (SI Comms)

DESCRIPTION

SI Comms is the former Trojan Special Purpose Integrated Remote Intelligence Terminal (Trojan SPIRIT) program and focuses on meeting broad-ranging intelligence communications requirements. SI Comms is a portfolio consisting of several high-bandwidth communications systems ranging in size from man-portable suitcases to trailer-mounted solutions. Each has a unique capability set that corresponds to a specific mission profile and requirement. However, all systems provide the Marine Air Ground Task Force Commander a near real-time means by which to move perishable data for the subsequent production of timely, actionable intelligence in support of indications and warning, high-value target operations, and target package processing.

Trojan SPIRIT LITE: The TROJAN SPIRIT LITE, AN/TSQ-226(V)1, is a secure High Frequency dual-band multichannel Satellite Communications terminal using a 2.4-meter antenna. The system is packaged in 17-22 transit cases including support items (spares, test, equipment and uninterrupted power systems) for a total weight of 2,200 pounds and a volume of 103 cubic feet. It is easily transportable via High Mobility Multi-Wheeled Vehicle or commercial vehicle. The system provides a fly-away capability for enhanced voice video and data communications from 64 Kbps to 1.544 Mbps. These communications links can be both Secret (Collateral) and TS/SCI simultaneously.

SWE-Dish: IPT Suitcase, AN/USC-68, is a 0.9m dish (Ku Band) capable of up to 4 Mbps duplex transmission of IP standard data, voice, and video. The IPT Suitcase is a large suitcase size (27.6x18.5x12.2 in) and weighs approximately 86 pounds. The IPT Suitcase typically serves as the "spoke" in a Hub/Spoke architecture with a 5 to 1 ratio.

FA-150T MIL Fly-Away: AN/USC-67, is a 1.5m dish (Ku, C, and X Band) capable of up to 60 Mbps IP encrypted traffic. The FA-150T MIL Fly-Away incorporates integrated packaging consisting of a rugged case with integrated wheels. All packaging material (case, lids, etc.) are used to create a stable antenna platform. The FA-150T MIL Fly-Away measures (47.0x29.9.20.9 in) when stored and weighs 132 lbs. The FA-150T MIL Fly-Away typically serves as the "hub" in a Hub/Spoke architecture with a 1 to 5 ratio.

DIVN: The Defense Intelligence VSAT Network FoS is a family of modular, small satellite communications terminals that provide secure, rapidly deployable, broadband communications. The DIVN FoS is capable of providing data, voice, and video on any security domain including Non-Secure Internet Protocol Routing Network, Secure Internet Protocol Routing Network, Joint Worldwide Intelligence Communications System (JWICS), and Coalition networks. The DIVN FoS consists of three specifically sized solution sets:

- DIVN- Mini: BGAN/GRRIP terminal is capable of up to 492 kbps throughput. This system fits in a single rugged, waterproof case (16x13x6.87 in) and weighs 28 pounds. It can be set up in less than 15 minutes.

- DIVN-Lite: 0.9-1.2m dish (Ku Band) is capable of up to 3.5 Mbps uplink and 40 Mbps downlink. This system is commercial air checkable and can be set up in less than 30 minutes.
- DIVN: 1.8m dish (C Band) is capable of up to 4.125 Mbps uplink and 84 Mbps downlink. This system is small, truck transportable and can be set up in less than one hour.

OPERATIONAL IMPACT

SI Comms provides short-haul and long-haul capabilities using existing communications networks and access providers (e.g., Defense Intelligence Activity, Defense Information Systems Agency, USA INSCOM). SI Comms is deployed in support of Radio Battalions, Intelligence Battalions, Special Security Communications Teams supporting Marine Divisions/Marine Air Wings, and Marine Special Operations Command Detachments. The Military Occupational Specialty intended to operate this equipment is the Special Intelligence Communicator. The purpose of these systems is to provide a worldwide, forward-deployed, quick-reaction reporting and analysis capability to military intelligence units for training, and for low-to-high intensity conflict. The SI Comms provide Marine Corps commanders dedicated secure, mobile, data and voice communications that can receive, transmit and disseminate bulk data and imagery products from, and to national and tactical intelligence sources.

PROGRAM STATUS

The Approve Acquisition Objective (AAO) for palletized systems increased to 35 during the first quarter FY 2009 based on effectiveness in supporting Operations Freedom/Operation Iraqi Freedom. The AAO for mobile systems also increased to 20 systems. Marine Corps Combat Development Command is conducting a Capabilities Based Assessment to determine 21st-Century Special Intelligence communications requirements. Wartime sustainment is the primary focus in early 2010. IPv6 and other technology upgrades for existing Trojan SPIRIT systems commenced in FY 2009.

Intelligence Analysis System (IAS)

DESCRIPTION

IAS uses a three-tiered approach for receiving, parsing, analyzing, and disseminating fused, all-source intelligence. The first tier, the Marine Expeditionary Force (MEF) IAS, is a mobile system that supports the MEF Command Element. The second-tier Intelligence Operations Server (IOSv2a or IOSv3) is a team-portable system designed to support intelligence operations at the major subordinate commands. The third tier, the Intelligence Operations Workstation (IOWv2), is the link to intelligence data for the battalion, squadron, and company levels, using client/server technology for a "reachback" capability to higher commands for intelligence information updates. The IOWv2 can also function as a stand-alone workstation, operating with certain limitations in a disconnected environment.

OPERATIONAL IMPACT

Fielding of the MEF IAS has provided Marine Air Ground Task Force commanders with a mobile, all-source, intelligence data fusion and dissemination capability. The IOSv2a (Unix) and IOSv3 (Windows) give the commander at the Marine Expeditionary Unit, regiment, and group levels access to time-sensitive intelligence data that is crucial to the military decision making process and the conduct of intelligence preparation of the battlefield.

PROGRAM STATUS

The MEF IAS is currently in the post production/fielding phase of the acquisition process. All systems were fielded to the operating forces along with Marine Reserve units. All elements of IAS were refreshed during FY 2009. The IAS Family of Systems executes periodic hardware and peripheral refreshes as per the Program Manager Navy Marine Corps Intranet/Information Technology refresh schedule. One major software fielding and one service pack is fielded per fiscal year. MEF IAS functionality will be subsumed in Distributed Common Ground System–Marine Corps Increment II.

Procurement Profile:	FY2010	FY2011
Software:	1	1
Service Pack:	1	1
IAS FoS Refresh	1	0

Developer/Manufacturer:
MTC Services Corporation, Stafford, VA; KnowBiz, San Diego, CA; EMA, Charleston, SC; and SPAWAR, Charleston, SC

Hardware components: Commercial-off-the-shelf (COTS) and non-developmental items (NDI)

Software components: Various COTS and government-off-the-shelf developers

Key GOTS software developers and system integration of hardware and software: EMA, Charleston, SC; Dynamic Tactics for C4ISR Solutions, Charleston, SC; L-3 Communications, Virginia Beach, VA; SRC, Charleston, SC; and SPAWAR, Charleston, SC

Technical Control and Analysis Center (TCAC)

DESCRIPTION

TCAC is the Marine Corps' senior Signals Intelligence (SIGINT) system. TCAC fills the Marine Corps' requirement for a semi-automated tactical SIGINT and Electronic Warfare (EW) fusion system that can adequately perform the processing, analysis, and reporting functions of the operating forces Radio Battalions (RadBn) and Marine Tactical Electronic Warfare Squadrons (VMAQ) in order to support the mission of providing timely and accurate SIGINT and EW support to Marine Air Ground Task Force (MAGTF) operations. TCAC fuses intelligence from organic, theater, and national collection for dissemination to tactical users. TCAC is the focal point of the RadBn SIGINT operations. In addition, TCAC delivers an enhanced automated intelligence processing, analyzing, and reporting capability that improves the total control and management of SIGINT/EW capabilities to include the production and dissemination of SIGINT/EW information for the MAGTF.

OPERATIONAL IMPACT

TCAC enables Marines to fulfill their mission to include: providing SIGINT and mission planning support to MAGTF Command Element, Aviation Combat Element, and Ground Combat Element; interfacing with appropriate national, theater, and organic intelligence sources; and identifying high interest events and equipment failures. TCAC is deployed in support of MAGTF operations worldwide. TCAC is employed in two configurations; the TCAC Remote Analysis Workstation (RAWS) and the Transportable Workstation.

PROGRAM STATUS

TCAC is a post-milestone C program (production and deployment phase) and is currently undergoing incremental upgrades which will enhance the current capabilities of the existing systems. Major enhancements include Windows Server upgrade, Full Disk Encryption (FDE), a fully integrated audio processing capability, a Semantic Wiki with user-defined alerts, and integration with the Real Time Regional Gateway. The Approved Acquisition Objective for the TCAC is:

- AN/UYQ-83B TCAC RAWS: 50
- AN/MYQ-9B Transportable Workstation: 302
- AN/UYK-166 TCAC MLS: 5
- AN/UYQ-103 Tactical ONEROOF: 48

Procurement Profile:	FY2010	FY2011
Windows Servers	0	40
Monitor Keyboard Assembly	75	0
Uninterrupted Power Sources (UPS)	55	0
FDE Drives	500	500
Printers	40	35
Transit Cases	55	0

Developer/Manufacturer:
MTSC, Stafford, VA; SPAWAR, Charleston, SC; Lockheed Martin Technical Operations, Camarillo, CA

MAGTF Secondary Imagery Dissemination System (MSIDS)

DESCRIPTION

MSIDS provides organic tactical digital imagery collection, transmission, and receiving capability to the MAGTF Commander. MSIDS comprises Commercial-Off-the-Shelf (COTS) components necessary to enable Marines at all echelons of the Marine Expeditionary Force to capture, manipulate, annotate, transmit, or receive imagery and video in near real-time, internally with subordinate commands that are widely separated throughout the area of operations and externally with high adjacent commands. The MSIDS Video Exploitation Workstation (VEW) suite provides an organic digital imagery processing capability to manipulate, annotate, digitize and edit video/still imagery, and brief intelligence products. The MSIDS capability resides with all G/S-2 echelons of the MAGTF, Reconnaissance Battalions, Light Armored Reconnaissance Battalions, Infantry Battalion Scout Sniper Platoons, Marine Special Operations Command, Tank Battalions, Artillery Battalions and Marine Security Forces. MSIDS is currently employed in every location where the Marine Corps conducts military operations.

OPERATIONAL IMPACT

MSIDS provides the only self-contained, hand-held, ground perspective imagery capability to MAGTF units and is essential in mission planning and intelligence collection. Other MAGTF near real-time imaging systems, such as unmanned aerial systems and the F/A-18 Advanced Tactical Airborne Reconnaissance System, provide overhead imagery that cannot capture the detail and ground perspective attainable through MSIDS. In asymmetric threat environments — where targets of interest are often small, highly mobile units such as terrorists or guerilla groups — it is imperative that a MAGTF be able to identify individuals and structures from the ground level. Technology insertions via a yearly increment refresh provide MSIDS equipped Marines with the ability to receive needed technological upgrades in a timely manner.

PROGRAM STATUS

The approved MSIDS acquisition strategy specifies a refresh of one third of the system's components yearly through a spiral increment of the COTS components. The FY 2011-2012 refresh will replace computers, upgrade software, and refresh thermal and night vision devices, along with continuing the "Grow the Force" initiative fielding.

Procurement Profile:	FY 2010	FY 2011
MSIDS computers/SW	0	400
Personal Data Controllers	600	330
\Cameras	3000	150
Night Vision	0	50
Thermal	0	400
VEW	0	0

Developer/Manufacturer:
Canon, Panasonic, ITT, ViaSat and FLIR
MTCSC, Stafford, VA
EYAK Technologies, Anchorage, AK
Integrity Data Inc, Colorado Springs, CO

Team Portable Communications System-Multi Platform Capable (TPCS-MPC)

DESCRIPTION

The TPCS-MPC provides the Marine Air Ground Task Force (MAGTF) with integrated, semi-automated Signals Intelligence (SIGINT) equipment to conduct communications intelligence, direction finding, computer-aided SIGINT analysis, and indications and warnings. TPCS-MPC is scalable to meet tactical mission requirements, having single collection outstations for stand-alone requirements and integrated capabilities. TPCS-MPC is not a "new system development" effort, but rather a program with continuous upgrades. The primary emphasis is on modular, scalable functionality, with a rapid procurement of readily available Commercial-Off-The-Shelf/Government-Off-The-Shelf/Non-Developmental Item (COTS/GOTS/NDI) technologies. The program requires limited integration to allow rapid fielding of new capabilities to Marine Corps Radio Battalions (RadBns). TPCS-MPC suites will consist of platform integration kits which provide the interface devices required to deploy various configurations of the exploitation modules on non-dedicated platforms such as the High Mobility Multi-Wheeled Vehicle, Mine Resistant Ambush Protected vehicle, and Mobile Electronic Warfare Support System vehicle.

OPERATIONAL IMPACT

The mission of TPCS-MPC is to provide Marine Corps RadBns with a semi-automated, team transportable, modular, and scalable communications intelligence capability to support the MAGTF. TPCS-MPC is directly supporting Marines in current operations.

PROGRAM STATUS

The TPCS-MPC Block 0 configuration is currently in production and reached Full Operational Capability in 2009. The Block 1 effort was initiated with a Milestone B decision in December 2008.

Developer/Manufacturer:
Space and Naval Warfare Systems Command, Charleston, SC; Digital Receiver Technology, Germantown, MD; Scientific Research Corporation, Charleston SC.

Expeditionary Intelligence Support

The Marine Corps Intelligence Activity (MCIA) provides tailored intelligence products and services to the Marine Corps, other services and the Intelligence Community based on expeditionary mission profiles in littoral areas. As the Marine Corps' Intelligence Production Center, MCIA plays a key role in the development of service doctrine, force structure, training and education, and systems development and acquisition.

MCIA comprises a command element; a production and analysis element that includes analysis, imagery, and topographic support; a counterintelligence/human intelligence element; and a cryptologic support element. Each element provides unique capabilities that enable MCIA to fully support intelligence requirements in all facets of expeditionary operations. Together, these elements deliver "excellence in expeditionary intelligence" to MCIA's broad and growing customer set.

MCIA engages with Marine units scheduled for deployment ensuring that each command understands MCIA capabilities and limitations in providing support during pre-deployment, deployment, and post-deployment. Frequently, pre-deployment engagement includes command site visits encouraging the full identification of specific, detailed intelligence requirements and preliminary estimates of supportability, not only using MCIA's own internal capabilities but also its unique ability to leverage the larger Intelligence Community to help solve Marine Corps operating forces intelligence challenges.

During deployment, MCIA maintains contact with the deployed unit ensuring continued support to operational requirements. Additionally, during a deployment MCIA may provide a liaison officer facilitating direct representation and a better understanding of intelligence requirements. All intelligence requirements adhere to appropriate chains of command to include each supported Combatant Command.

After the deployment ends, MCIA coordinates and conducts a post-deployment brief. This brief includes not only the supported units and MCIA, but also any other organizations that contributed to the intelligence support effort. The intent is to review the intelligence requirements submitted with the intelligence support provided and determine what worked well, what needs improvement and capture lessons learned for the future.

This unyielding focus on supporting Marine Forces — be they deployed in harm's way, preparing to deploy, or safely returned to their homeport — is the hallmark of MCIA's expeditionary intelligence support.

PART 4:

GROUND MOBILITY AND FIRE SUPPORT

INTRODUCTION

Today's operational environment demands speed, agility, and mobility of ground forces to respond to, if not anticipate, an adversary's actions, often in complex, ambiguous battlefields, against irregular forces and in a wide variety of operational — desert, jungle, mountain, and Arctic — environments. Individual Marines must also be capable of deterring and defeating the conventional force of more traditional adversaries, where the ability to maneuver with speed and agility also remains paramount to achieving mission objectives. An important enabler of maneuver warfare mobility is the individual Marine's ability to call in offensive and defensive fires from ground-based, airborne, and seaborne systems. Timely, responsive, high-accuracy and precision fires can often mean the difference between success and failure.

The Army and Marine Corps are working together to develop tactical wheeled vehicle requirements for the joint forces. The defined capabilities reflect an appropriate balance in the survivability, mobility, payload, networking, transportability, and sustainability. The Army/Marine Corps Board has proven a valuable forum for coordination of the development, fielding strategies, and production of armoring kits, up-armored High Mobility Multipurpose Wheeled Vehicles, and rapid response to requests for Mine-Resistant Ambush-Protected Vehicles.

In 2007, "The Major Combat Operations Analysis for Fiscal Years 2014 to 2024" study scrutinized the current organic fire support of the Marine Air Ground Task Force (MAGTF) to determine the adequacy, integration, and modernization requirements for ground, aviation, and naval surfaces fires. The Marine Corps also performed a supplemental historical study using Operation Iraqi Freedom data to examine MAGTF fires in the full spectrum of warfare. These studies reconfirmed our development of the Triad of Ground Indirect Fires. Several innovative systems related to fire support significantly enhanced the warfighting efficiency and effectiveness of the MAGTF, including the M777A2 Lightweight Howitzer, High Mobility Artillery Rocket System, Expeditionary Fire Support System, Advanced Field Artillery Tactical Data System, and the Target Location, Designation, and Handoff system.

Expeditionary Fighting Vehicle (EFV)

DESCRIPTION

The Marine Corps' number-one priority ground program, the EFV, will be the primary means of tactical mobility for the Marine rifle squad during ship-to-shore amphibious operations and subsequent operations ashore. The EFV is a ship to shore self-deploying, high-water speed, armored amphibious vehicle capable of transporting Marines from ships located beyond the horizon to inland objectives. The EFV will have the speed and maneuvering capabilities to operate with main battle tanks on land. In addition, the vehicles can use virtually all bodies of water as avenues of approach and maneuver. The EFV is a fully tracked infantry combat vehicle that will be operated and maintained by a crew of three Marines and have a troop capacity of 17 Marines with their individual combat equipment. The EFV replaces the Assault Amphibious Vehicle (AAV7A1) that was fielded in 1972 and will be more than 40 years old when the EFV is fielded.

OPERATIONAL IMPACT

The EFV's high speed on land and water, highly lethal day/night-fighting ability, advanced armor, and nuclear, biological, and chemical protection will significantly enhance the lethality and survivability of Marine maneuver units across the spectrum of operations. The EFV enables the Navy and Marine Corps team to project power from the sea base in a manner that will exploit intervening sea and land terrain, achieve surprise, avoid enemy strengths, and generate never-before-realized operational tempo, survivability, and lethality across the spectrum of conflict.

PROGRAM STATUS

The EFV program is in the Systems Development and Demonstration Phase of the acquisition process. Following a successful review process, the program released a design at Critical Design Review conducted during the first quarter FY 2009 that met all allocated requirements, including reliability. These improvements will be demonstrated during Developmental Test and Operational Test starting in the second quarter FY 2010 on seven prototypes. The Low Rate Initial Production decision (Milestone C) is programmed for FY 2012, with Full Rate Production to begin in FY 2015. IOC is scheduled for 2016 and FOC is scheduled for 2026.

Procurement Profile: The acquisition objective is 573 EFVs.

Developer/Manufacturer:
The Joint Services Manufacturing Center in Lima, OH, is the production and assembly site for the EFV. The prime contractor is General Dynamics Amphibious Systems, Woodbridge, VA

Mine-Resistant Ambush-Protected (MRAP) Vehicle

DESCRIPTION

MRAP vehicles are V-shaped hulled, raised chassis, armored vehicles with blast-resistant underbodies designed to protect crews from mine and Improvised Explosive Device (IED) blasts, as well as fragmentary and small-arms threats. Four categories of MRAP vehicles carry out several critical missions:

- MRAP-All Terrain Vehicle (M-ATV) supports small-unit combat operations in complex and highly restricted rural, mountainous, and urban terrains. The M-ATV provides better overall mobility characteristics than the original CAT I, II, and III MRAP vehicles and provides better survivability characteristics than any High Mobility Multi-Wheeled Vehicle variant. The M-ATV retains the same survivability threshold as the MRAP CAT I, II, and III vehicles. The M-ATV will support mounted patrols, reconnaissance, security, convoy protection, casualty evacuation, data interchange, and command and control functions.
- Category I vehicles support operations in an urban environment and other restricted/confined spaces; including mounted patrols, reconnaissance, security, convoy protection, Explosive Ordnance Disposal (EOD), communications, casualty evacuation (CASEVAC), command and control, and combat service support.
- Category II vehicles support multi-mission operations such as convoy security, troop and cargo transport, limited combat engineering and EOD support, CASEVAC, and ambulance.
- Category III vehicles support mine/IED clearance operations that also include route clearance.

OPERATIONAL IMPACT

Because Marine units operating in a complex security environment require vehicles capable of surviving mine/IED, small-arms fire, rocket-propelled grenade, and vehicle-borne IED attacks, MRAP vehicles provide deployed commanders, various units, EOD, and Combat Engineer teams with survivable ground-mobility platforms. Marines participate in and/or respond rapidly to a variety of offensive, stability, and security operations without a large security contingent and they need a vehicle capable of functioning in a counter attack after surviving a "first blow" ambush or attack.

PROGRAM STATUS

A sole-source contract was awarded in November 2006 for 200 CAT II and up to 80 CAT III vehicles to bridge urgent warfighting needs, after which a competitive acquisition for the balance of CAT I and CAT II platforms was put in place. In January 2007, nine indefinite delivery, indefinite quantity contracts were awarded to vendors that demonstrated capabilities to meet the program's overarching objective of producing the maximum number of survivable, safe, and sustainable MRAP vehicles in the shortest period of time. The Joint Program Office (JPO) has used

a series of Low Rate Initial Production delivery orders with six of the vendors to order a majority of the vehicles.

A total of 22,882 vehicles are being procured for the Army, Marine Corps, Air Force, Navy, and the U.S. Special Operations Command. The Marine Corps is executing the joint program on behalf of the Navy (lead Service). To date, the JPO has acquired 20,205 vehicles (including 137 legacy systems) to satisfy the acquisition objective.

Force Protection, Industries (FPI) and the other MRAP CAT I and II vehicle manufacturers have completed production of all vehicles for the Marine Corps and the JPO. The Marine Corps Force, Central Command objective was reached in June 2008. International customer vehicle production will continue at FPI.

As of September 2009, 16,454 MRAP vehicles had been accepted by the government; 14,412 vehicles have been fielded to units in theater (9,548 in Iraq, 3,304 in Afghanistan, and 1,560 in Kuwait, Qatar, and Bahrain.

The JPO has initiated a constant modernization process and Capability Insertion (CI) program in Theater for vehicles redeploying from Iraq to Afghanistan. All MRAP Cougars (CAT I and CAT II) in Afghanistan, for example, are being upgraded with Independent Suspension Systems (ISS) to improve durability and survivability in the more difficult Afghan terrain. The JPO is also assessing the use of ISS on other MRAP vehicles. Additional modernization efforts include bar armor, rocket propelled grenade defeat, Automatic Fire Suppression Systems and other improvements to enhance MRAP performance in the Afghanistan.

The JPO awarded a contract to Oshkosh Corporation in June 2009 for a smaller, more agile MRAP variant. The M-ATV fulfills an urgent and compelling requirement to protect Marines with a highly survivable and off-road capable vehicle. The current M-ATV requirement is for 6,644 vehicles. M-ATVs began arriving in Afghanistan in October 2009.

Procurement Profile: FY2007-FY2010	
Army	15,941
Marine Corps	4,115
Navy	661
Air Force	810
SOCOM	1,129
Test Vehicles	226
TOTAL	22,882

Developer/Manufacturer:
BAE, York, PA

BAE-TVS, Sealy, TX

Force Protection, Industries, Inc. (FPI), Charleston, SC

General Dynamics Land Systems-Canada (GDLS-C), London, Ontario

Navistar Defense, LLC, Warrenville, IL

Oshkosh Corporation, Oshkosh, WI

Marine Personnel Carrier (MPC)

DESCRIPTION

The MPC will provide three infantry battalions expeditionary maneuver protection against ground combat and irregular warfare threats. An MPC company lifts an infantry battalion along with infantry's organic wheeled assets. MPCs will be employed by the Assault Amphibian Battalions and will have three variants. The MPC-Personnel will be the base variant, two of which transport and support a reinforced infantry squad. The MPC-Command will be employed as a mobile command-echelon/ fire-support coordination center for infantry battalion headquarters. The MPC-Recovery will be the maintenance and recovery variant of the MPC.

OPERATIONAL IMPACT

The MPC supports expeditionary maneuver by enhancing Marine operating forces' tactical mobility at high protection levels. It possesses a balance of performance, payload, and protection across the range of military operations. MPCs will be optimized to support the Ground Combat Element conducting irregular or major combat operations. This protected mobility capability is essential in achieving critical operational and tactical outcomes, e.g., gaining access, shaping the operational environment, seizing and maintaining the initiative, gaining and maintaining continuous pressure and positioning forces to locate, identify, destroy, neutralize, or suppress targets as required.

PROGRAM STATUS

In the spring of 2008, the Marine Requirements Oversight Council validated the MPC requirement and approved the materiel solution as an advanced-generation armored personnel carrier and that the MPCs be integrated into the Assault Amphibian battalions. Milestone A is slated for the second quarter FY 2010. At that time, an acquisition strategy of full and open competition will be initiated.

Internally Transportable Vehicle (ITV)

DESCRIPTION

The ITV will be a highly mobile weapons-capable light-strike platform that can support a variety of operations. It will provide Marine Air Ground Task Force (MAGTF) ground combat units with a vehicle transportable in CH-53E/K helicopters and MV-22 tilt-rotor aircraft. It also will provide reconnaissance units equal or greater mobility than the MAGTF maneuver elements they support, thereby enhancing mission performance and survivability.

OPERATIONAL IMPACT

The ITV will allow MAGTF commanders to take maximum advantage of the speed and range offered by the MV-22 and CH-53E/K by deploying ground units equipped with highly mobile light-strike vehicles armed with heavy or medium machine guns. The Interim Fast Attack Vehicle (IFAV) is currently fielded and is deployable inside the CH-53E aircraft, but the Ground Combat Element currently has no ground-mobility platform that can deploy inside the MV-22. ITV will replace the Interim Fast Attack Vehicle.

PROGRAM STATUS

The ITV Program is currently in production and deployment. A full rate production decision was approved in July 2008 and Initial Operational Capability was achieved in June 2009, when one infantry battalion received 15 ITVs.

Procurement Profile:	FY 2010	FY 2011
Quantity:	40	73

Developer/Manufacturer:
General Dynamics Ordnance and Tactical Systems, St. Petersburg, FL, with subcontractor American Growler, Robbins, NC

High Mobility Multipurpose Wheeled Vehicle (HMMWV) Expanded Capacity Vehicle (HMMWV ECV)

DESCRIPTION

The HMMWV ECV is the fourth-generation design of the HMMWV and is replacing the aging fleet of baseline A1 variants and some A2 variants. The HMMWV was originally fielded to Marine Corps units in the mid-1980s. The ECV is the latest generation and upgrades include: a 6.5L turbo engine; microprocessor-controlled engine electrical start system; more powerful Environment Protection Agency compliant engine; increased payload (500 pounds); improved corrosion prevention; and access panels to facilitate maintenance. Current armor guidance from the Marine Corps Combat Development Command is 100 percent of the HMMWV fleet is to have Integrated Armor Package (IAP) at a minimum, and 60 percent are to be fully up-armored.

OPERATIONAL IMPACT

To successfully accomplish their missions, Marine Air Ground Task Forces (MAGTFs) require a light tactical vehicle for command and control, troop transport, light cargo transport, shelter carrier, towed weapons prime mover, and weapons platform throughout all areas of the battlefield or mission area. Also, 71 Marine Corps component programs use the HMMWV as their prime mover. For units that require specific vehicle configurations, the detailed requirements will be provided in kit form, capable of being installed at the general support maintenance level or below, or by incorporation of Component of Major End Items/ Component of End Items by the system integrator. To meet the new Approved Acquisition Objective (AAO) and have 100 percent of the HMMWVs with the IAP and 60 percent fully up-armored, a major transition of HMMWV types and configurations is on-going. Operational and emergent requirements are being sourced; however there exists a significant AAO shortfall that will be addressed in the FY 2012 program.

PROGRAM STATUS

The Marine Corps has procured, fielded, and supported large numbers of HMMWVs since the mid-1980s, and the infrastructure and processes are well established to support fielding ECVs, and to phase-out baseline A1 and some A2 variants. Training courses and technical manuals are being updated, and ECV unique parts and tools are being integrated into the existing supply system. The AAO for the USMC is 26,502 units. With the realignment of the AAO validation, MAGTF Table of Equipment review, and armoring guidance, the total HMMWV A2 and ECVs procured that meet the AAO requirement is 17,722. The USMC Armoring Strategy is currently being drafted and could further shape the HMMWV program.

Procurement Profile:	FY 2010	FY 2011
Quantity:	53	208

Joint Light Tactical Vehicle (JLTV)

DESCRIPTION

The JLTV is a joint Army/Marine Corps multinational program for a family of light tactical vehicles and companion trailers. JLTV objectives include: increased protection and performance; minimizing ownership costs by maximizing commonality and reliability; increasing fuel efficiency; and executing effective competition throughout the program development. The JLTV Family of Vehicles (FoVs) includes ten configurations and companion trailers in three payload categories. Commonality of components, maintenance procedures, and training between all variants will minimize total ownership costs.

OPERATIONAL IMPACT

The JLTV FoVs will be capable of operating across a broad spectrum of terrain and weather conditions. The approved JLTV Initial Capabilities Document, and the Draft Capabilities Development Document (CDD) identifies required capabilities for the next generation of light tactical vehicles needed to support joint forces across the full range of military operations and provide a vital force enabler, multiplier, and extender.

The joint services intend to replace a portion of the HMMWV fleet with JLTVs as part of the ground transportation modernization effort, but it is not meant to be a direct replacement for existing vehicles. JLTV will give the warfighter increased protection through the use of scalable armor solutions, while returning the payload currently traded by existing tactical vehicles for added armor protection. Using a system of systems approach, JLTV will increase warfighter maneuver capacity by providing protected mobility on the modern battlefield. JLTV's performance characteristics will exceed the unarmored HMMWV and will return expeditionary mobility to the joint services.

PROGRAM STATUS

The JLTV program is currently in the Technology Development (TD) phase. The Defense Acquisition Executive (DAE) approved the Milestone A Decision in December 2007. A Request for Proposals was released in February 2008 and three contracts were awarded in October 2008 to BAE Systems, General Tactical Vehicles (a joint venture between General Dynamics Land Systems and AM General), and Lockheed Martin. The results of the 27-month TD phase will inform and support finalization of the CDD scheduled for completion in FY 2011 prior to Milestone B.

The three original equipment manufacturers will then deliver seven prototype vehicles and four trailers for testing during third quarter FY 2010, which will be followed with 12 months of government testing. Upon the completion of the TD phase, the services currently anticipate conducting another full and open competition with award of two contracts for the Engineering and Manufacturing Development phase, with full production and fielding anticipated in FY 2013. The Marine Corps' Approved Acquisition Objective is for 5,500 vehicles.

Medium Tactical Vehicle Replacement (MTVR)

DESCRIPTION

The MTVR program is replacing the aging medium truck fleet (M809/M939) series 5-ton trucks with state-of-the-art commercial automotive technology. The MTVR has an increased payload of 7.1 tons off-road and 15 tons on-road, a high-performance suspension, traction control, new engine, central tire inflation system, automatic transmission, and corrosion technology upgrades.

There are several variants of the basic MTVR platform for different tasking, including a cargo variant, dump truck, a wrecker, and a tractor. The dump and wrecker variants maintain maximum commonality with the basic MTVR cargo chassis while performing their unique missions. The Marine Corps is procuring the Navy tractor variant to serve as the prime mover for the Mk 970 refueler variant, and the Navy also uses MTVR vehicles for construction battalion (Seabee) operations.

The MTVR Armor System (MAS) provides complete 360-degree protection as well as overhead and underbody protection for the crew compartment using Mil-A-46100 High Hard Steel and Metal Composite standards. It is designed for the life of the vehicle (22 years). The MAS is capable of withstanding small-arms fire, improvised explosive devices, and mines. It includes upgraded suspension, air condition system, removable armored personnel carrier (with ballistic glass), machine gun mounts, and the Marine Corps Transparent Armor Gun Shield.

The MAS is a permanent modification to the vehicle, and includes an upgraded front suspension and cabin rebuild. The kit includes an integrated air-conditioning system and machine gun mount. The Cargo MAS kit includes an optional removable Troop Carrier (with ballistic glass), which also supports Maritime Pre-positioned Shipping (MPS) requirements.

OPERATIONAL IMPACT

More than 1,300 MTVRs are being used in theater. The MTVR can readily negotiate terrain twice as rough as the 5-ton's capability.

PROGRAM STATUS

The MAS is installed in all MTVR variants in Iraq and Afghanistan, and the service has continued to improve the MAS in response to Urgent Universal Needs Statements — adding increased underbody blast protection, fuel tank fire-protection kits, and 300-amp alternator kits (e.g., for powering counter improvised explosive devices). Every MTVR that leaves the forward operating base is equipped with the MAS. Discussions are ongoing with the Office of Naval Research, Program Manager Expeditionary Power Systems, and Program Executive Officer Land Systems for a follow-on Exportable Power (diesel hybrid).

Logistics Vehicle System Replacement (LVSR)

DESCRIPTION

The LVSR will replace the current Marine Corps heavy-tactical wheeled vehicle, the Logistics Vehicle System (LVS). As the Marine Corps' heavy-tactical distribution system, the LVSR cargo variant will transport several cargoes: bulk liquids (fuel and water); ammunition; standardized containers; bulk, breakbulk, and palletized cargo; and bridging equipment. The LVSR will have wrecker and tracker variants as well and will be employed throughout the MAGTF. The vehicle base design includes factory-installed armor and is also designed to accept an add-on armor kit for increased crew protection.

The all wheel drive vehicle is equipped with an independent suspension system for superior off-road mobility in the most severe environments. The LVSR features an on-road payload capacity of 22.5 tons and an off-road payload capacity of 16.5 tons. Its maneuverability is increased by four-axle steering capabilities. The LVSR is also equipped with advanced electronics system for in-cab diagnostics of the vehicle's critical systems, including the engine, transmission, and brakes. It uses a single-source lubrication system for easier maintenance and has a 600-horsepower C15 engine.

OPERATIONAL IMPACT

To successfully accomplish their mission, MAGTFs require a heavy ground logistics distribution system that is highly mobile, efficient, extremely reliable, and flexible. This system must be capable of operating over increased distances with increased payloads to meet the demands of Expeditionary Maneuver Warfare. The LVSR will rapidly distribute all classes of supply, while including a self-loading/unloading capability to reduce dependence on external material handling equipment. For example, the LVSR will help address one of the Marine Corps' biggest challenges in Afghanistan of getting supplies, equipment, and logistics into the remote areas that Marines are operating.

PROGRAM STATUS

LVSR achieved Initial Operational Capability in September 2009. The original indefinite delivery/indefinite quantity order contract for the LVSR was awarded in May 2006 to Oshkosh Defense, Oshkosh, WI. The contract has a value of $987 million based on a production quantity of 1,699 units. As of end FY 2009, 663 vehicles had been placed under contract. Full-rate vehicle production began in December 2008 and includes add-on armor "B" kits, in addition to the factory-installed integral ("A" kit) armor, and can be applied in the field.

Developer/Manufacturer:
Oshkosh Defense Corporation, Oshkosh, WI

Route Reconnaissance and Clearance (R2C) Family of Systems

DESCRIPTION

The R2C capability set mitigates the threat of mines, Improvised Explosive Devices and obstacles along routes in the Marine Air Ground Task Force Area of Operation. R2C units can perform stand-off detection, interrogation, marking, and clearance of explosive and non-explosive obstacles in order to ensure the mobility of friendly forces. In addition, it provides a rapidly employable set capable of performing route reconnaissance to obtain information about key terrain features, route conditions, and obstacles along specific routes. The R2C set will reside in combat engineer battalions (CEB), engineer support battalions (ESB), and Marine wing support squadrons (MWSS). Each CEB and ESB will be assigned three sets and each MWSS will be assigned one set.

OPERATIONAL IMPACT

This mobility capability is essential for maintaining access, shaping the battlespace, establishing the initiative, positioning forces, and supporting dispersed forces. This capability ensures maneuver and sustainment forces reach their objectives when subject to attack by the variety of explosive weapons and ambushes characteristic of irregular warfare. It provides warfighter and system survivability against asymmetric threats. R2C operations also enable the effective execution of the stability operations tasks of initial humanitarian assistance, limited governance, restoration of essential public services, and other reconstruction assistance by providing access and protection to the executing forces and agencies and gathers geospatial information vital for mobility planning.

PROGRAM STATUS

This is a FY 2010 new start Program of Record. The Capability Production Document was approved by the Marine Requirements Oversight Council in August 2009. Increment I consists of procuring Light Weight Mine Rollers, Robots, Vehicle Mounted Mine Detectors, and Light Weight Route Clearance Blades that will augment currently fielded CAT I, II & III Mine-Resistant Ambush-Protected vehicles to provide an initial R2C capability set. Increment II consists of the fielding of refurbished CAT I and II MRAPs, CAT III Marine Personnel Carriers, addition of an Interrogation Arm onto specified R2C platforms, and procurement of Automated Route Reconnaissance Kits and Vehicle Optic Senor Systems.

Procurement Profile:	FY 2010	FY 2011
Increment I Sets	12	11

Developer/Manufacturer:
The R2C Family of Systems uses products from multiple vendors and government agencies with the largest being Force Protection, Industries, Inc. (FPII), Charleston, SC, and General Dynamics Land Systems, Sterling Heights, MI

Expeditionary Fire Support System (EFSS)

DESCRIPTION

The EFSS will be the third and final system of a land-based fire-support triad that also includes the Lightweight 155mm Howitzer and the High Mobility Artillery Rocket System (HIMARS). Accompanying Marine Air Ground Task Forces (MAGTFs) in all types of expeditionary operations, EFSS will be the primary indirect fire-support system for the vertical-assault element of the Ship-To-Objective Maneuver force. As such, the EFSS launcher, the mobility platform, a portion of the basic load of ammunition, and a portion of its crew will be internally transportable by a single CH-53E helicopter or a single MV-22 tilt-rotor aircraft, and will possess the greatest possible range and flexibility of employment for operational maneuver from the sea.

OPERATIONAL IMPACT

The EFSS will expand the maneuver commander's spectrum of fire support options and be capable of successfully engaging a spectrum of potential point and area targets, including motorized, light armored and dismounted personnel; command and control systems; and indirect-fire systems. The EFSS will afford the MAGTF commander increased flexibility in tailoring his fire-support systems to support the scheme of maneuver. EFSS-equipped units will be particularly well suited for missions requiring speed, tactical agility, and vertical transportability. The EFSS design and configuration will ensure that its tactical mobility, in the air and on the ground, is equal to that of the force supported.

PROGRAM STATUS

The EFSS Program is currently in production and deployment. Full rate production was approved in June 2008 and Initial Operational Capability was achieved in March 2009, when one artillery regiment received six EFSS systems.

Procurement Profile:	FY 2010	FY 2011
Quantity:	20	10

Developer/Manufacturer:
General Dynamics Ordnance and Tactical Systems, St. Petersburg, FL, with subcontractor TDA Armaments (THALES Group), La Ferte-Saint Aubin, France

High Mobility Artillery Rocket System (HIMARS)

DESCRIPTION

HIMARS is a C-130-transportable, wheeled, indirect-fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM). The HIMARS launcher consists of a fire-control system, carrier (automotive platform), and launcher-loader module that will perform all operations necessary to complete a fire mission. The system is defined as one launcher, two resupply vehicles, and two resupply trailers and munitions.

OPERATIONAL IMPACT

HIMARS addresses an identified, critical warfighting deficiency in Marine Corps fire support. HIMARS will primarily employ the Guided MLRS rocket to provide precision fires in support of maneuver forces. HIMARS is a transformational, 24-hour, ground-based, responsive, general support/general support-reinforcing, precision, indirect-fire weapon system that accurately engages targets at long ranges (40+ miles) with high volumes of lethal fire under all weather conditions and throughout all phases of combat operations ashore. HIMARS will be fielded to two battalions (one active and one Reserve) in the Marine Corps.

PROGRAM STATUS

The HIMARS program is in the operations and support phase. HIMARS achieved Initial Operational Capability in fourth quarter FY 2008. Full Operational Capability will be achieved in FY 2010.

Procurement Profile:	FY 2010	FY 2011
Quantity:	0	0

Developer/Manufacturer:
Launcher and MFOM: Lockheed Martin Corporation,

Missiles & Fire Control Division, Dallas, TX

Re-Supply System: Oshkosh Truck Corporation, Oshkosh, WI

Lightweight 155mm Howitzer (LW155)

DESCRIPTION

The LW155 is a joint Marine Corps/Army program to develop, produce, and field a towed 155mm howitzer that provides increased mobility, survivability, deployability, and sustainability in expeditionary operations throughout the world. The LW155, designated the M777/M777A2, is a direct- and general-support artillery system replacing the M198 155mm Medium Towed Howitzer in both services. It has incorporated innovative design technologies to overcome deficiencies inherent in the current M198 howitzer. The LW155 is the first ground combat system whose major structures are made of high-strength titanium alloy, and the system makes extensive use of hydraulics to operate the breech, load tray, recoil, and wheel arms. The combination of titanium structures and the use of hydraulic systems resulted in a significant weight savings (more than 7,000 pounds) compared to the M198 system. Additionally, the M777/M777A2 emplaces three times faster, displaces four times faster, traverses 32 percent more terrain worldwide and is 70 percent more survivable than the M198.

The M777A2 is capable of firing unassisted high explosive projectiles using conventional and modular propellants to a range of 15 miles and rocket assisted projectiles to approximately 19 miles; however, the addition of the digital fire-control system (DFCS) enables the weapon to program and fire the M982 Excalibur precision-guided munitions to ranges of 24 miles with better than 10-meter circular error probable (CEP) accuracy (i.e., 50 percent of the rounds will impact within ten meters of the aim point). The weapon is capable of firing up to four rounds per minute with sustainment firing of two rounds per minute.

The M777A2 is an upgrade to the basic weapon that adds a digital fire-control system using a global positioning system, an inertial navigation unit, and a vehicle motion sensor to accurately locate and orient the weapon to deliver greater accuracy, responsiveness, and reliability. The system also integrates radios for voice and digital communications and a Chief of Section Display that is decoupled and mounted into the cab of the prime mover for use as a navigation aid.

OPERATIONAL IMPACT

The LW155 provides significantly greater combat capability to troops. The weight reduction improves transportability and mobility without impacting range

or accuracy. The lightweight M777A2 can be airlifted by the CH-53E/K and the MV-22 Osprey into remote high-altitude locations inaccessible by ground transportation. Some M777A2 facts:

- The M777A2 can fire the precision guided Excalibur munitions, co-developed by BAE Systems Global Combat Systems, up to 24 miles with sufficient accuracy, for example, to target selected portions of a building, reducing the chance of non-combatant casualties and enabling supporting fire to be delivered much closer to friendly troops.
- It can fire a standard 43.5 kilogram shell almost 21 miles at 2.5 times the speed of sound. The projectile takes about a minute to fly the distance and reaches a maximum height of 12 kilometers. The shell reaches its maximum speed of 1,800 miles per hour by the time it exits the muzzle of the gun.
- The energy released firing at maximum range is 40 megajoules.
- The internal cannon peak pressure during firing reaches 60,000 pounds per square inch.
- The wind speed, meteorological conditions and even the Earth's rotation are taken into account for accurate targeting.
- The gun remains stable when firing, despite its lightweight, by being "out of balance" with the barrel mounted low and forward.

PROGRAM STATUS

The LW155 is in-service with the U.S. Marine Corps and Army and has been deployed in current operations. The Canadian army purchased the base M777 under a foreign military sale (FMS) contract and has 16 M777A2 howitzers in service with the Royal Horse Artillery in Afghanistan. Canada will be receiving an additional 21 howitzers. Australia has a FMS case under way to purchase the M777A2. Through May 2009, the total number of orders for the gun had reached 737 units.

Developer/Manufacturer:
Manufacture and assembly of the titanium structures and recoil components: Barrow-in-Furness, UK

Integration and testing: BAE Systems Global Combat Systems, Hattiesburg, MS

Target Location, Designation, and Hand-off System (TLDHS)

DESCRIPTION

A joint fires/combined-arms tool, the TLDHS is a modular, man-portable, equipment suite that provides the capability to quickly and accurately acquire targets in day, night, and near-all weather visibility conditions. It is the first system within the Department of Defense approved for fielding that allows observers to control Close Air Support (CAS) as well as artillery and naval fire-support missions on a single system using digital communications.

OPERATIONAL IMPACT

TLDHS enables operators to conduct target acquisition and target hand-off to fire support agencies using existing and planned communications equipment to support maneuver units of the Marine Air Ground Task Force. Operators are able to accurately determine and designate a target's location and then digitally transmit (hand-off) these target data to supporting arms elements. The TLDHS employs a laser designator for precision-guided munitions and laser spot trackers, and it also generates accurate coordinates for global positioning system-guided weapons, including Excalibur and Joint Direct Attack Munitions. The primary operators are Forward Air Controllers (FAC) and Joint Terminal Attack Controller (JTAC) for CAS, Forward Observers (FO) for field artillery missions, Fire Power Control Teams of the Air and Naval Gunfire Liaison Companies, Marine Corps Special Operations Command, and the supporting training commands. TLDHS maintains interoperability with several systems, including Advanced Field Artillery Tactical Data System (AFATDS), Naval Fire Control System, Joint Tactical Common Operational Picture Workstation Gateway, Common Laser Range Finder, and the AN/PRC-117 Tactical Combat Net Radio. TLDHS is developed to be interoperable with numerous joint services fire command and control systems and delivery platforms.

PROGRAM STATUS

An evolutionary acquisition approach is used for this Acquisition Category III program. TLDHS is currently in Block II Full Rate Production. TLDHS Block II provides extended CAS functionality for the FAC/ Joint Terminal Attack Controllers via enhanced digital interfaces with the F-16, AV-8B and F/A-18 aircraft. Block II also adds the ability for FOs to conduct indirect fire missions via the AFATDS. The program is scheduled to reach Full Operational Capability in the fourth quarter FY 2011. The Approved Acquisition Objective is 976 with 496 fielded through FY 2009.

Developer/Manufacturer:
Stauder Technologies, Saint Peters, MO

The Family of Target Acquisition Systems (FTAS)

DESCRIPTION

FTAS is the Ground Combat Element's (GCE) indirect-fire acquisition capability. The FTAS comprises the AN/TPQ-46 Firefinder Ground Weapons Locating Radar (GWLR), the AN/TPQ-48 Lightweight Counter Mortar Radar (LCMR), and the Target Processing Set (TPS).

OPERATIONAL IMPACT

The AN/TPQ-46 Firefinder provides the ability to locate Indirect Fire (IDF) weapons to include mortars, artillery, and rockets within a 1600 mill search sector from ranges of .75 to 24 kilometers and is the primary IDF detection system in the Marine Corps.

The AN/TPQ-48 LCMR provides a 6400 mil mortar detection capability at ranges of 1 to 5 kilometers, short-range detection coverage, and slewing/cueing intelligence to the AN/TPQ-46 via the AN/TSQ-267.

The AN/TSQ-267 TPS is the command and control (C2) node of the FTAS capability providing radar deployment orders, support functions and provides target data to the counterfire/countermeasure servicing agent. The TPS uses the Advanced Field Artillery Tactical Data System as its primary communication, and C2 tool. As a program within Program Manager Radar Systems, the capability is being fielded under an Abbreviated Acquisition Program (AAP).

PROGRAM STATUS

The FTAS Program Office is supporting the warfighter with all three systems. The Firefinder and LCMR are deployed. The Marine Corps is procuring and fielding an additional 22 Firefinder radar systems to support expanded requirements. The LCMR is being fielded under an AAP, with an Approved Acquisition Objective (AAO) of 46 systems. Procurements for both the Firefinder and LCMR have been funded using Overseas Contingency Operations (OCO) procurement. AAO for TPS is seven sets, two per for each active duty artillery regiment and one for the reserve component. Naval Surface Warfare Center, Crane, IN, is the system integrator as this program provides an S788 shelter configured to house the existing suite of C2 equipment.

Developer/Manufacturer:
AN/TPQ-46: The system is a combination of a control shelter manufactured by Northrop Grumman, an antenna transceiver manufactured by Thales Raytheon, as well as prime mover and communication equipment.

LCMR: Syracuse Research Corporation

PART 5:

AVIATION

INTRODUCTION

Fixed and rotary-wing aircraft organic to the Marine Air Ground Task Force (MAGTF) shape the battlespace and fight the battle, often in direct support of individual Marines on the ground. This air-ground combined-arms team has proven unequalled in answering the Nation's calls across the spectrum of operations, from humanitarian assistance to delivering ordnance on target during crisis and conflict. Regardless of the multifaceted and dynamic threats faced, the mission remains unchanged: to remain the MAGTF's aviation force in readiness.

Today, the priority is to replace legacy aircraft — some of which have been flying since the Vietnam War — with vastly more capable aircraft. The Marine Corps challenge is to remain engaged operationally, sustaining the force while executing a transition strategy for the future. In that regard, the Marine Aviation Plan is a phased, multiyear plan looking out ten years and beyond, incorporating force structure changes to balance the active duty and reserve components. The Marine Corps is introducing generation-skipping technologies while providing critical manpower increases simultaneously, to all flying squadrons and selected sections of the Marine Aircraft Group and Marine Aircraft Wing headquarters. Critical to this effort are our numerous transition task forces, leading the way as we transition from 13 types of legacy aircraft to seven new platforms.

The Marine Corps transition strategy can be separated into two mutually supportive efforts: sustain the legacy fleet and transition to new aircraft. Sustaining the legacy fleet includes upgrading command and control systems as well as aviation ground support systems in four concurrent programs:

- Aviation Combat Element (ACE) legacy aircraft modernization
- Theater Battle Management Core System
- The Joint Interface Control Office Support System
- Aviation Ground Support System

The Marine Corps will transition to new aircraft and systems on schedule and within established budgets. The overarching transition strategy detailed in the Marine Aviation Plan is our roadmap for navigating through this challenge. This living document outlines the Marine Corps' multiyear transition plan to a dramatically changed fleet, and provides details for:

- F-35B Short Take-Off Vertical Landing Joint Strike Fighter (STOVL JSF) program
- MV-22 Osprey program
- H-1 Upgrade program (UH-1Y / AH-1Z)
- KC-130J transition and Harvest Hawk system introduction
- CH-53K program and heavy lift requirements
- Unmanned aircraft systems (UAS) programs and upgrades
- Operational support aircraft sustainment and upgrades

Aviation Combat Element (ACE) Legacy Aircraft Modernization

The Marine Corps has several significant aviation modernization programs underway to restore and enhance the capabilities of its existing aircraft and systems. These modernization efforts are vital to the Marine Corps' near- to mid-term combat capabilities.

CH-46E SEA KNIGHT

The CH-46E Sea Knight performs medium-lift combat missions in the execution of the assault support function of Marine aviation. The CH-46E is fulfilling critical roles in combat operations throughout the globe and continues to be deployed with Marine Expeditionary Units. Sustainability, performance improvements, and payload-recovery programs are essential to ensure the platform continues to meet Marine Air Ground Task Force (MAGTF) and joint warfighting requirements through 2019. Because the CH-46E continues to play a vital role in support of overseas contingency operations, aircraft survivability equipment systems are being upgraded to mitigate enemy threats, including the missile warning system, countermeasures dispensing system and system to defeat infrared missiles. Numerous weight reduction initiatives have commenced and include lightweight ceramic armor and lightweight armored aircrew seats. CH-46E readiness and utilization rates are at historic highs, and the efforts underway will help these aircraft perform the mission safely and effectively until their retirement.

CH-53E SUPER STALLION

The CH-53E Super Stallion is a three-engine, long-range, heavy-lift helicopter that has been key to the assault support function of Marine aviation. However, the CH-53E cannot support the range and payload requirements of Marine Corps future warfighting concepts. The current fleet of aircraft is being flown at higher rates than planned due to global commitments. A sustainment strategy has therefore been implemented to address critical fatigue, obsolescence, and reliability issues. A fully new-build design of the Marine Corps heavy-lift platform, focusing on reliability, maintainability, cost of ownership, and performance, is required to meet MAGTF and joint warfighting re-

quirements during the next 25 years.

The CH-53K program is the material solution to maintaining a heavy-lift capability beyond the year 2025. The CH-53K is a critical ship-to-objective enabler that will replace the CH-53E, which has been fulfilling the heavy lift requirements for more than 20 years. The CH-53K will provide the Marine Corps with the ability to transport 27,000 pounds of cargo out to 110 nautical miles, generating nearly three times the lift capability of the CH-53E under the same environmental conditions, while fitting under the same shipboard footprint. Major system improvements of the new-build helicopter include: larger and more capable engines; an expanded gross weight airframe; an enhanced drive train; advanced composite rotor blades; a modern interoperable cockpit; improved external and internal cargo handling systems; and increased survivability and force-protection measures.

AV-8B HARRIER

The AV-8B Harrier Open Systems Core Avionics Requirement, which updates obsolete software and computer equipment, has been improved to increase the weapons and sensors capabilities of the aircraft. OSCAR with Operational Flight Program H5.0 enables the AV-8B to employ the Dual-Mode Laser-Guided Bomb (DM-LGB) and provides multiple improvements in LITENING advanced targeting pod capability.

The upgrades to the LITENING pod continue to improve the AV-8B's lethality and survivability. This third-generation forward-looking infrared set, dual field-of-view television seeker, and infrared marker provide improved target recognition and identification and precision targeting capability. Most LITENING pods have also been equipped with a C-band video downlink, which allows real-time video to be sent to ground-based commanders and forward air controllers/joint tactical air controllers equipped with the Rover III receiver station. This facilitates time-sensitive targeting and reduces the risk of fratricide and collateral damage.

In order to maintain a world-class training environment, the two-seat TAV-8B trainers have been upgraded with the OSCAR mission computer, night vision goggle-compatible lighting, and the more powerful and reliable Rolls Royce Pegasus (408) engine. These improvements are increasing the training capability of the AV-8B fleet replacement squadron, as well as the abilities of replacement pilots reporting to fleet squadrons. The enhancements to the Harrier are critical in providing continued support to the MAGTF until the implementation and Joint Strike Fighter transition is complete.

F/A-18 HORNET

The F/A-18A+ Upgrade (Engineering Change Proposal 583) consists primarily of avionics and hardware upgrades that allow the F/A-18A+ Hornet to process and use updated versions of F/A-18C software and accessories. A large portion of this modification enhances commonality between the "A+" and "C" aircraft, reducing logistics footprint and pilot and maintenance training requirements, as well as mitigating obsolescence issues. The modified "A+" aircraft is compatible with a Lot XVII F/A-18C aircraft, an aircraft eight years younger than the "A+" Hornets. This upgrade also enables the "A+" aircraft to employ all current and programmed future weapons.

Fifty-six aircraft are scheduled to receive the upgrade, enabling the upgraded "A" model aircraft to remain active through 2020. These additional, capable F/A-18 airframes are instrumental in supporting the Navy-Marine Corps Tactical Aviation Integration (TAI) plan.

The F/A-18D Advanced Tactical Airborne Reconnaissance System (ATARS) provides manned airborne tactical reconnaissance capability to the MAGTF. ATARS incorporates multiple sensor capabilities including electro-optical, infrared, and synthetic aperture radar. ATARS-equipped aircraft carry all sensor capabilities simultaneously, enabling imagery selectable by the aircrew in flight. Another significant capability of ATARS is its ability to transmit digitally-collected data in near-real time to ground receiving stations. This imagery can be data-linked to various intelligence systems for national exploitation via the Tactical Exploitation Group. Twenty-two ATARS sensor suites and 31 ATARS-modified aircraft were operational in all five Marine Corps F/A-18D squadrons in January 2009.

The LITENING advanced targeting pod provides the F/A-18 with a significant improvement in lethality. LITENING is the Marine Corps' third-generation capability for its expeditionary aircraft. This forward-looking infrared sensor, dual field-of-view television seeker, and infrared marker provide improved target recognition and identification, and precision targeting capability. All F/A-18 and AV-8B supporting overseas contingency operations are deploying with LITENING pods with video downlinks.

Based upon the LITENING pod's proven combat value during recent operations, the Marine Corps has modified expeditionary F/A-18 and EA-6B Prowler aircraft to carry the LITENING pod. It is a proven capability that enables Marine aviation to support the MAGTF and joint force commanders.

EA-6B PROWLER

EA-6B Prowlers are an essential, combat-proven element of the MAGTF and joint force. The primary mission is Electronic Warfare (EW), which includes electronic attack (EA), electronic warfare support (ES), and electronic protection (EP). EA-6B aircraft and systems are in the process of a modification and upgrade effort to the Improved Capabilities III (ICAP III) weapon system for both Marine and Navy squadrons. The core of the ICAP III is the ALQ-218 digital receiver system, the same system the Navy adapted for their new EA-18G Growler. This is the first significant receiver upgrade to the Prowler since its fleet introduction in 1971 making advanced signal targeting possible. These new receivers and the additional computing capacity in ICAP III enables improved aircrew situational awareness, more precise and effective jamming, increased readiness and availability, and a reduction in life cycle costs.

ICAP III attained initial operational capability (IOC) for the Navy in FY 2005. Since that time, the capability has been combat proven by squadrons in carrier air wings and ashore. The Marine Corps will receive its first ICAP III in March 2010, and plans to complete the transition to an all ICAP III force in FY 2012. During this time the Marine Corps will retain its four operational squadrons (VMAQs) with a Primary Mission Aircraft Authorization (PMAA) of twenty Prowlers. After the Navy completes its transition to an all EA-18G force in 2015, the Marine Prowler community will continue training aircrew through 2016, at which time the USMC EA-6B "sundown" will begin, with one squadron standing down per year until finished in 2019.

There will be no single platform to replace the EA-6B. Rather, EW capability for the MAGTF will be provided from numerous systems, both airborne and ground-based. The vision of MAGTF EW is a composite of manned and unmanned surface, air, and space-based assets, fully networked and collaborating to provide the MAGTF commander the ability to dominate the EM spectrum at the time and place of his choosing. For the next decade the EA-6B ICAP III will be the cornerstone of MAGTF EW and will be joined over time by capabilities fielded on UAS, fixed & rotary wing aircraft and JSF, as well as in the Radio battalions and other units within the Ground Combat Element.

Aviation Ground Support (AGS)

The Marine Wing Support Group (MWSG) provides functional support to enable Marine aviation operations in an expeditionary environment. These capabilities are also relevant to the joint force commander on the battlefield, where forward basing and rapid aviation support might be required. AGS is scalable and sustainable, but must continue to modernize to support current and future Aviation Combat Element (ACE) expeditionary operations. The MWSGs and Marine Wing Support Squadrons (MWSS) are undergoing several equipment and structure refinements and capability enhancements to plan rapidly and deploy, and to provide AGS to the ACE commanders' training and wartime requirements. Additionally, the MWSGs and MWSSs will integrate improvements in logistics processes and information technologies as part of the current logistics modernization (LOGMOD) initiatives.

Continued operational, training and equipment enhancements will keep AGS on par with evolving Marine Corps future operational and logistics concepts. Future AGS capability must provide measured AGS: required amounts of fuel, ammunition, logistics and ACE-specific services must be ready at a time and place of the ACE or site commander's choosing. The MWSS will maintain its core capability to establish and operate one Forward Operating Base (FOB, or main airfield) and two Forward Arming and Refueling Points (FARPs) simultaneously. Embedded within the MWSS will be task-organized and -equipped capability sets (internal to the squadrons and loaded aboard Maritime Prepositioning Force ships) that can be employed rapidly for ACE mission tasking.

Through capability enhancements, the MWSS will reduce its footprint ashore and have the ability to set up swiftly, provide necessary AGS for short-duration operations, and displace and relocate within minutes. Using mobility to reduce vulnerability will be central to ACE force protection; also, the reintegration of military police into the Marine Aircraft Wing (MAW) enables self-defense capability should the ACE be engaged at operational sites.

AGS COMMAND AND CONTROL

Key to the effective sustainment of the ACE and Marine Air Ground Task Force (MAGTF) fight will be a greater level of integration into the ACE command and information architecture. To ensure seamless mission planning and operations for AGS, the MWSS Aviation Ground Support Operations Center (AGSOC) will be linked to the ACE command information network and site command network to monitor ACE support requirements, to provide increased situational awareness to higher and adjacent commands, and to act rapidly to support ACE operations.

LOGISTICS INTEGRATION

The integration of all logistics assets ashore will be a critical enabler to MAGTF operations. Interoperability between the Logistics Combat Element (LCE) and the MWSS must remain seamless.

EXPEDITIONARY AIRFIELD (EAF) / AIRCRAFT RESCUE AND FIRE FIGHTING MODERNIZATION (ARFF)

The AGS modernization initiative will ensure that the MWSS is capable of supporting the ACE during expeditionary maneuver warfare operations. The intent of the Expeditionary Airfield (EAF) / Aircraft Rescue and Fire Fighting (ARFF) modernization initiative is to provide a more-rapidly deployable, maneuverable, and responsive expeditionary airfield capability that supports advanced aviation systems and platforms. EAF/ARFF modernization programs include:

- Advanced lightweight matting capable of supporting F-35B Lightning II operations
- Man-portable, all-weather airfield lighting systems
- Rapidly-deployable, self-contained airfield damage-repair systems
- Modernized firefighting vehicles and systems

METEOROLOGICAL MOBILE FACILITY REPLACEMENT– NEXT GENERATION

The next-generation Meteorological Mobile Facility Replacement [METMF(R) NEXTGEN] will replace the legacy METMF(R) weather van and provide a modular and scalable meteorological capability throughout the battlespace using a HMMWV- mounted facility capable of providing real-time environmental sensing and weather data in support of the MAGTF during expeditionary operations. The METMF(R) NEXTGEN will enable the Marine meteorological center (METOC) forecaster to turn relevant environmental data into actionable intelligence, which in turn will facilitate timely operational decision-making.

REGIONAL METEOROLOGICAL CENTERS

The Regional Meteorological Centers (RMC) became operational in FY 2008 and provide consolidated hubs on each coast (Cherry Point, NC; and Miramar, CA) to distribute meteorological forecast, weather alerts and tactical weather products to Marine Corps air stations and facilities in the continental United States. The RMC also serves as a training center for METOC personnel and ensures that entry-level METOC personnel are trained to provide support to the ACE during garrison as well as expeditionary operations.

AGS EXPANSION

The expansion of AGS capability will include the establishment of an MWSS (-) to support Marine Aircraft Group-24 (MAG-24) and Marine aviation units operating in Hawaii and Guam. AGS capabilities will support emerging MAG-24 operational and logistics needs.

F-35B Lightning II Short Take-Off Vertical Landing (STOVL) Joint Strike Fighter (JSF)

DESCRIPTION

The F-35B Lightning II STOVL JSF is a single-engine, very low observable, supersonic strike-fighter aircraft capable of short take-offs and vertical landings ashore and at sea. The multi-capable JSF combat system will combine the basing flexibility of the AV-8B with the multi-role capabilities, speed, and maneuverability of the F/A-18 and the electronic warfare dominance of the EA-6B. Co-located with Marine Air Ground Task Force (MAGTF) maneuver elements, the JSF will fulfill the Marine Corps' air-to-ground and air-to-air requirements in support of the commander's intent. The very low radar cross-section, superior sensor integration and robust net-enabled capabilities far exceed even the most advanced legacy aircraft in the areas of survivability, lethality, and supportability.

Designed from the outset with all six functions of Marine air in mind, the F-35B will ensure the MAGTF commander can maneuver in time and space at his discretion and will be able to deliver kinetic, non-kinetic, and intelligence, surveillance and reconnaissance (ISR) resources (scaled appropriately), precisely when and where they are needed.

OPERATIONAL IMPACT

The STOVL JSF provides a multi-mission offensive air support and an offensive/ defensive anti-air capability. The STOVL JSF also provides the MAGTF with a platform capable of tactical air control and tactical reconnaissance. Additionally, the aircraft will be able to provide destruction of enemy air defenses as well as Electronic Warfare (EW) — both electronic surveillance and electronic attack.

The Joint Strike Fighter family of aircraft includes the short takeoff, vertical landing variant for the U.S. Marine Corps and British forces; conventional takeoff and landing for the U.S. Air Force; and the aircraft carrier-capable variant for the U.S. Navy. The JSF will replace the Marine Corps' AV-8B, EA-6B and F/A-18A/C/D; the Air Force's F-16C and A-10; and the Navy's F/A-18C. Commonality among the variants helps reduce both development and lifecycle costs, and will result in the greatest "bang for the buck" compared to developing three separate aircraft.

The requirements for the JSF are focused on readiness, the combined-arms concept, expeditionary capability, and conducting expeditionary maneuver war-

fare. The F-35B will be a MAGTF integrator, bringing capabilities and options to the decision-maker. The F-35 will incorporate advanced mission systems, including the Active Electronically Scanned Array (AESA) radar, Electro-Optical Targeting System (EOTS), and Distributed Aperture System (DAS). AESA, EOTS, and DAS information will be incorporated into a pilot's helmet-mounted display system, negating the need for a traditional heads-up display in the cockpit. In addition to the F-35's inherent EW capability, the JSF has been selected as a threshold platform for the Next-Generation Jammer (NGJ) program. The NGJ replaces legacy ALQ-99 jamming pods flown on both the EA-6B and EA-18G aircraft. The additional capabilities NGJ brings can be fielded on all 2,400+ U.S. F-35 variants. This will move EW focus away from low-density / high-demand assets like the aging EA-6Bs and instead make EW ubiquitous throughout the battlespace.

PROGRAM STATUS

The JSF is a joint program with the Air Force, Navy, Marine Corps, and international partners: Australia, Canada, Denmark, the Netherlands, Norway, Turkey, and the United Kingdom. These countries are "ground-floor" participants and partners in the F-35 program, not foreign military sales customers.

The JSF Systems Development and Demonstration (SDD) phase is scheduled to last until 2014. The SDD phase will include the certification of various precision engagement capabilities, as well as of cutting-edge sensor fusion that will directly support MAGTF and joint force commanders. Since completing the critical design review, the prime contractor has begun assembling long-lead items in preparation for starting Low Rate Initial Production.

The first STOVL test article, BF-1, successfully completed first flight in June 2008. BF-1 and BF-2 are now at NAS Patuxent River, as our program builds to a total of seven aircraft in developmental flight test. The Marine Corps' robust developmental test schedule will be followed by operational test where the design will be evaluated for operational suitability and employment with our operating forces. Initial Operational Capability is scheduled for 2012.

Procurement Profile:	FY 2010	FY 2011
Quantity:	16	17

Developer/Manufacturer:
Air Vehicle: Lockheed Martin, Northrop Grumman, and British Aerospace Engineering

Propulsion: Pratt & Whitney and General Electric

Joint Strike Fighter (JSF) Transition Plan

VMFAT-501, the first Marine Corps JSF Short Take-off Vertical Landing (STOVL) training squadron, will stand up on 2 April 2010, as part of the JSF Joint Integrated Training Center. VMFAT-501 will be assigned operational control and administrative control to 2d Marine Aircraft Wing but with a command training relationship and co-location with the U.S. Air Force (USAF) 33d Fighter Wing, a USAF training wing. Initial students are expected to start training in early 2011. The Operational Test and Evaluation (OT&E) detachment stands up at Edwards AFB in February 2012 and commences Block 2.0 OT&E in the summer of 2012.

The Marine Corps' F-35B will be capable of operating from aircraft carriers, "L"-class amphibious assault ships, main operating bases, and austere sites ashore. The STOVL F-35B will provide the Marine Corps with a low observable, state-of-the-art, high-performance, multi-role offensive aircraft. The JSF Operational Requirements Document stipulates the F-35B will have a 450-nautical mile combat radius when employed from a ship and be capable of 550-foot short takeoffs with a full internal payload (two 1,000 pound-class weapons and two air-to-air missiles) on ship-launched missions. The United Kingdom's Royal Air Force and Royal Navy and the Italian Navy will also employ the STOVL variant aboard their air-capable ships.

The Corps will employ the F-35B to support the six functions of Marine Corps aviation. This remarkable breadth of employment will allow the Marine Corps to decrease its tactical aviation inventory while increasing aircraft lethality, survivability, and supportability compared to legacy aircraft. The Marine Corps' requirement for STOVL is 420 aircraft.

Once the F-35B enters service, the Marine Corps will begin retirement of AV-8Bs and F/A-18 Hornets. As currently planned, all legacy tactical strike aircraft platforms should be retired by 2024. The Corps will incorporate an airborne electronic attack capability into the baseline F-35 to address the eventual retirement of EA-6B Prowlers. This electronic warfare capability in STOVL will use a system-of systems-approach, in which electronic warfare capabilities are distributed across manned and unmanned aerial systems.

MV-22 Osprey Program

DESCRIPTION

The MV-22B Osprey tiltrotor aircraft — the only such opertional military aircraft in the world — is an advanced-technology Vertical/Short Takeoff and Landing, multi-purpose tactical aircraft that will replace the current fleet of Vietnam-era CH-46E helicopters. The MV-22B is a multi-mission aircraft designed for use by all the services. The Marine Corps, Navy, and Air Force are committed to fielding this unique aircraft.

The MV-22B joins the Joint High Speed Vessel, Expeditionary Fighting Vehicle and Landing Craft Air Cushion as the seabasing connectors necessary to execute expeditionary maneuver warfare. Specific missions for the MV-22B include expeditionary assault from land or sea; raid operations; medium cargo lift; tactical recovery of aircraft and personnel; fleet logistics support; and special warfare.

The MV-22B's design incorporates the sophisticated but mature technologies of composite materials, fly-by-wire flight controls, digital cockpits, and advanced manufacturing processes. The MV-22B's prop-rotor system, engine, and transmissions are mounted on each wingtip and allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, transitioning the MV-22 into a high-speed, high-altitude, fuel-efficient, turbo-prop aircraft.

OPERATIONAL IMPACT

The MV-22 will be the cornerstone of Marine Corps' assault support capability, with the speed, endurance, and survivability needed to fight and win on tomorrow's battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for expeditionary and Maritime Prepositioning Forces. The Osprey has a 350-nautical mile combat radius, cruises at 255 knots, and is capable of carrying 24 combat-equipped Marines or a 10,000 pound external load. With a 2,100 nm single aerial refueling range, the aircraft also has a strategic self-deployment capability.

PROGRAM STATUS

The MV-22 reached IOC in June 2007 and is currently deployed and in direct support of Marine Air Ground Task Force operations. Following three consecutive deployments to Operation IRAQI FREEDOM from October 2007 until April 2009, the MV-22B began its first shipboard deployment in May 2009 with the 22d Marine Expeditionary Unit and were operational in Afghanistan. The MV-22 is now on its fifth deployment, and in December 2009 entered the theater of war in Afghanistan. The Marine Corps' transition from the CH-46E to the

MV-22B continues at the approximate rate of two Ospreys delivered per month and two squadrons transitioned per year.

Production of the MV-22B is based on a block production strategy, which is designed to provide continual life-cycle and capability improvements throughout the life of the platform. Block A-series aircraft are designed to serve as non-deployable, training aircraft only, and they include software enhancements, a nacelle reconfiguration, and additional reliability and maintainability improvements compared to the original aircraft design. As of January 2010, 30 Block A aircraft have been delivered and were primarily in service at Marine Corps Air Station New River. Block B-series aircraft are the deployable configuration of the MV-22B Osprey. These aircraft provide improvements in effectiveness and maintainability for operators and maintainers, including improved access to the nacelle for inspection purposes and substantial reliability and maintenance improvements across the entire platform. As of January 2010, 54 Block B aircraft had been delivered to the fleet. Block C series aircraft will incorporate mission enhancements and increased operational capability. Enhancements will include multiple additions: weather radar; a forward-firing ALE-47 dispenser; improved hover coupled features; an improved environmental conditioning system; and a troop commander situational awareness station. The first Block C aircraft are projected to be delivered to the fleet in FY 2012.

Procurement Profile:	FY 2010	FY 2011
Block B:	30	30

Developer/Manufacturer:
Bell Helicopter Textron, Fort Worth, TX

The Boeing Company, Philadelphia, PA

H-1 Upgrade (UH-1Y Venom/AH-1Z Viper)

DESCRIPTION

The H-1 Upgrades Program (UH-1Y/AH-1Z) replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with a new four-bladed, all-composite rotor system that is coupled with a sophisticated, fully integrated, state-of-the-art cockpit. The UH-1Y and AH-1Z also incorporate a new performance-matched transmission, a four-bladed tail rotor and drive system, and upgraded landing gear. Additionally, structural modifications to the AH-1Z provide the aircraft with six weapons stations — two more than on the AH-1W. The advanced cockpit, common to both new aircraft, reduces operator workload, improves situational awareness, and provides growth potential for future weapons and joint interoperability. The cockpit integrates onboard planning, communications, digital fire control, self-contained navigation, and night targeting and weapons systems in mirror-imaged crew stations.

OPERATIONAL IMPACT

The UH-1Y ("Venom") and AH-1Z ("Viper") are approximately 84 percent common throughout, which significantly benefits Marine Air Ground Task Force maintainability and supportability. The H-1 Upgrades Program resolves existing operational UH-1N power margin and AH-1W aircrew workload issues while enhancing significantly the tactical capability, operational effectiveness and sustainability of our attack and utility helicopter fleet.

The Marine Corps' UH-1Ns are reaching the end of their useful lives. Due to airframe and engine fatigue, they routinely take off at maximum gross weight, with no margin for error. Continued implementation of the "Yankee Forward" strategy is a top Marine Corps aviation priority, and is evidenced by both the successful completion of the first UH-1Y deployment (with the 13th Marine Expeditionary Unit in July 2009) and the first full squadron deployment of Yankees to Afghanistan in the fall of 2009. Due to significant operational demands and aircraft attrition in the existing attack and utility helicopter fleets, the Marine Corps adopted a "build new" strategy for the UH-1Y.

Similarly, the Marine Corps has already begun investing in Non-Recurring Engineering for the production of 58 AH-1Z "build new" aircraft. These AH-1Zs will augment the existing AH-1Ws that will be remanufactured. This combined build new and remanufacture strategy will enable the Marine Corps to increase the number of AH-1s available to support the Marine Corps' growth to 202,000 personnel while mitigating the operational shortfalls caused by aircraft attrition. New squadrons are being established in support of the Commandant's 202K decision: HMLA-467 stood up at Marine

Corps Air Station (MCAS) Cherry Point in October 2008; HMLA-469 stood up at MCAS Camp Pendleton in early 2009; HMLA-567 will stand up at MCAS Cherry Point in September 2011 and will perform duties as the East Coast Transition Training Unit for the UH-1Y conversion of all East Coast tactical squadrons. Both HMLA-467 and HMLA-567 will relocate to MCAS New River once hangar facilities become available in FY 2012-13.

PROGRAM STATUS

Twenty-six production aircraft (20 UH-1Ys/six AH-1Zs) have been delivered through FY 2009. The UH-1Y achieved IOC on 8 August 2008 and received its Full Rate Production decision 17 September 2008. Extensive integrated AH-1Z testing was completed in 2009, and the aircraft is well postured for a successful Operational Evaluation in March 2010; it is on schedule to achieve Initial Operational Capability in second quarter FY 2011. The H-1 Upgrades overall procurement objective is 123 UH-1Ys and 226 AH-1Zs.

Procurement Profile:	FY 2010	FY 2011
Quantity:	28	22

Developer/Manufacturer:
Bell Helicopter Textron Inc., Fort Worth, TX

Integrated Cockpit: Northrop Grumman, Woodland Hills, CA

AH-1Z Target Sight System: Lockheed Martin, Orlando, FL

KC-130 Hercules

DESCRIPTION

The KC-130 is a versatile four-engine tactical aerial refueler/assault support aircraft. It is the only long-range, fixed-wing, assault-support capability organic to the Marine Corps. The KC-130J, with its increase in speed (+20 percent) and range (+35 percent) compared to legacy aircraft, also features an improved air-to-air refueling system and a state-of-the-art flight station. Other improvements include a Rolls Royce AE 2100D3 propulsion system, Dowty R391 advanced technology six-bladed propeller system, and a 250-knot cargo ramp and door, providing the Marine Air Ground Task Force (MAGTF) commander with a state-of-the-art, multi-mission, tactical aerial refueler/assault support transport asset well into the 21st Century. All of the active forces' legacy KC-130 aircraft have been replaced with KC-130Js, and once the reserve squadrons have transitioned to the J model the Marine Corps will have one type/model/series tactical aerial refueler/assault support aircraft.

OPERATIONAL IMPACT

The KC-130J provides the following capabilities: tactical in-flight refueling for fixed-wing, rotary-wing, and tilt-rotor aircraft; rapid ground refueling of aircraft or tactical vehicles; assault air transport of air-landed or aerial-delivered (parachute) personnel and equipment; airborne command and control augmentation; Pathfinder; battlefield illumination; tactical aero-medical evacuation; tactical recovery of aircraft; and personnel support.

In response to an Urgent Universal Need Statement, the Marine Corps is integrating the "Harvest Hawk" roll-on/roll-off ISR/Weapon Mission Kit for in-service KC-130J aircraft. This kit is designed to re-configure rapidly any KC-130J aircraft into a platform capable of performing persistent targeting. Additionally, the mission kit will enable the aircraft to deliver precision fires from Hellfire, Griffin, and Viper Strike munitions. This mission kit is designed as a complementary capability that takes advantage of the aircraft's extended endurance and will not detract from its ability to perform its primary mission of aerial and ground refueling.

This force multiplier is well suited to the mission needs of the forward-deployed MAGTF. The KC-130J will bring increased capability and mission flexibility to combat planning and operations.

PROGRAM STATUS

The Marine Corps KC-130J requirement is 79 aircraft. The KC-130J is procured as a commercial-off-the-shelf aircraft currently in production. Current programming brings the total number of KC-130J aircraft to 60. Initial Operational Capability was achieved in 2005.

Procurement Profile:	FY 2010	FY 2011
Quantity:	0	0

Developer/Manufacturer:
Lockheed Martin Aeronautics Company, Marietta, GA

CH-53K Heavy Lift Helicopter

DESCRIPTION

The CH-53E Super Stallion is a three-engine, long-range, heavy-lift helicopter that has been key to the assault support function of Marine aviation. However, as range and payload requirements increase in the future, the Marine Corps' future warfighting concepts will benefit with the introduction of a replacement heavy lift platform. A sustainment strategy has been implemented to address critical fatigue, obsolescence, and reliability issues until the aircraft can be replaced. A comprehensive re-design of the Marine Corps heavy-lift platform, focusing on reliability, maintainability, cost of ownership, and performance, is required to meet MAGTF and joint warfighting requirements.

The CH-53K is critical to sea-based expeditionary maneuver warfare for the Marine Corps of 2025. The CH-53K will provide the Marine Corps the ability to transport 27,000 pounds of cargo out to 110 nautical miles, generating nearly three times the lift capability of the CH-53E under the same environmental conditions while fitting under the same shipboard footprint. The CH-53K will also provide unparalleled lift capability under high/hot conditions, similar to those found in Afghanistan, thereby expanding greatly the commander's operational reach. Major system improvements of this completely new-designed helicopter include: larger and more capable engines; an expanded gross weight airframe; an enhanced drive train; advanced composite rotor blades; a modern interoperable cockpit; improved external and internal cargo handling systems; and increased survivability and force protection.

OPERATIONAL IMPACT

Maintainability and reliability enhancements of the CH-53K will decrease recurring operating costs significantly, while improving aircraft efficiency and operational effectiveness compared to the current CH-53E. The CH-53E's fully burdened operating costs are estimated to exceed $27,000 per flight hour in 2016. The CH-53K will improve the ability of the MAGTF and joint task force to project and sustain forces ashore from a sea-based center of operations in support of Expeditionary Maneuver Warfare, Ship-To-Objective-Maneuver and Distributed Operations. The performance improvements will enable the vertical insertion of two combat loaded up-armored HMMWV, one Light Armored Vehicle, or one 9,000-pound sustainment load to each of three separate landing zones.

PROGRAM STATUS

In the past year the CH-53K program conducted its Preliminary Design Review and has begun producing long-lead items in preparation for building test articles under the System Development and Demonstration Contract. Critical Design Review is slated for fourth quarter FY 2010.

Unmanned Aircraft Systems (UAS)

The Marine Corps has employed UAS since 1986. The demand for Intelligence Surveillance, and Reconnaissance (ISR) support continues to grow and clearly highlights the increased need for UAS in the Marine Corps. To fulfill this need, the Marine Unmanned Aerial Vehicle Squadron (VMU) has begun an organizational transformation that will lead to a flexible, scalable, detachment-based squadron.

The Marine Corps' UAS concept of employment is divided into three groups that coincide with various levels of capability as well as to the echelon of command they support. Marine Corps Combat Development Command has completed the Marine Corps UAS Family of Systems Concept of Operations and the USMC overarching capabilities study, which further defines the requirements for the USMC UAS Family of Systems.

The Marine Corps is currently transitioning from the older RQ-14 Dragon Eye to the joint RQ-11B Raven-B program, which was also selected by the Army and the U.S. Special Operations Command. Marine Corps battalions employ the small, hand-launched RQ-11B Raven at the company level. This system has shown great success for small-unit front-line commanders in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), providing short-range daytime electro-optical and nighttime infrared airborne reconnaissance. The Marine Corps is procuring 467 RQ-11B Raven systems through FY 2010 (three air vehicles per system) to replace the 135 Dragon Eye UAS.

Regimental and battalion commanders in the Marine Air Ground Task Force (MAGTF) will be supported by the Small Tactical UAS (STUAS). The systems will be provided and operated by VMU squadron detachments and will provide ISR, communications relay, and target acquisition capabilities to the MAGTF. The Marine Corps is currently filling this capability gap in OIF and OEF with an ISR services contract provided by the Boeing Corporation. Boeing employs the Scan Eagle UAS under separate fee-for-service agreements for both OIF and OEF. The contract will continue to provide this capability until succeeded by STUAS. The multi-service sponsored STUAS program Initial Capabilities Document was approved by the Joint Requirement Oversight Council in December 2006, and the program is currently undergoing the source-selection process with an IOC in 2011.

The largest MAGTFs and their division commanders are supported by the largest of three groups of USMC UAS. The Marine Corps transitioned to the RQ-7B Shadow system during the fourth quarter FY 2007 and deployed the system with VMU-1 to support OIF operations in September 2007. In OIF, the RQ-7B has provided improved reliability and material readiness compared to the older

RQ-2B Pioneer that it replaced. Using electro-optical and infrared cameras and communications relay payloads, ground units have visual access to their areas of responsibility and routes, and force protection enhancers prior to, during and after their missions. Programmed upgrades for the RQ-7B include increased payload capacity as well as a laser designator that will permit targeting for laser-guided ordnance.

By FY 2011, the Marine Corps will have increased the number of RQ-7B Shadow systems in each VMU from one to three systems, and reorganized the squadron's manpower into three detachments. This will triple the capability for a VMU squadron to support MAGTF operations without increasing the unit's total manpower. Additionally, the Marine Corps stood up a third VMU in September 2008 at Marine Corps Air Ground Combat Center Twentynine Palms, CA. VMU-3 will eventually be relocated to provide an increased capability for airborne ISR and target acquisition for 3d Marine Expeditionary Force in the Pacific. A fourth VMU squadron is scheduled to be stood up in Marine Forces Reserves in FY 2010 and will reach Initial Operational Capability by FY 2011. VMU-4 will augment the active-duty force, provide the Marine Corps a reserve capacity for the high-demand asset, and serve as a reservoir for the retention of specialized UAS skills.

The Corps will incorporate an Electronic Attack (EA) capability into current and future UAS platforms partly to address the eventual retirement of EA-6B Prowlers. This EA capability in UAS will compose a portion of the system-of systems-approach by which electronic warfare capabilities are distributed across manned and unmanned aerial systems. The system-of systems-approach allows the nation to move away from low-density/high-demand assets (like the EA-6Bs) and make electronic warfare ubiquitous across the battlespace.

Operational Support Airlift (OSA)

OSA aircraft provide air logistics support to our warfighters by moving high-priority passengers and cargo between and within theaters of operation. OSA aircraft carry out short-notice, time-critical logistical air movements. This relieves front-line tactical squadrons for higher-order missions and tasks. By freeing our tactical aircraft assets from routine missions, OSA aircraft are an effective combat multiplier for the Marine Air Ground Task Force (MAGTF), joint force, and regional combatant commanders. In peacetime, OSA aircraft are used to provide logistic support to ensure military effectiveness in support of national defense, essential training for operational personnel, and cost-effective seasoning of pilots.

The Marine Corps presently operates four different types of aircraft to fill its operational support airlift (OSA) requirements: the C-9 Skytrain; UC-12B/F King Air; C-20G Gulfstream IV; and UC-35C/D Citation 560 Ultra and Encore. Marine Corps UC-35s are forward-deployed in Southwest Asia, providing invaluable daily support to the regional combatant commander and relief to tactical aircraft by moving personnel and cargo throughout the theater.

In the continental United States (CONUS), Marine Corps OSA is scheduled by the U.S. Transportation Command (USTRANSCOM), through which the Joint Operational Support Aircraft Center maximizes use of all available CONUS OSA assets, regardless of service. USTRANSCOM additionally supports the MAGTF at combined exercises such as Enhanced Mojave Viper. The incorporation of OSA into MAGTF exercises relieves participating tactical squadrons from much of the exercise-associated administrative logistical airlift requirements. This in turn enables tactical squadrons to focus time and resources on combat-related flight training.

Acquisition of relatively low-cost, commercial off-the-shelf aircraft with minimal militarization is a cost-effective way to provide MAGTF commanders swift, on-demand operational support. OSA aircraft ensure the availability of short-notice, time-critical logistical air support, with aircraft flown by Marine aviators and fully integrated into Marine Corps operations.

Marine Aviation Logistics Transformation

Marine aviation is reshaping the Corps' aviation logistics elements to enable more responsive, flexible, and reliable combat support for future conflicts, while they continue to meet today's readiness needs. Previously, current readiness, End to End (E2E) AIRSpeed, and Marine Aviation Logistics Support Package II (MALSP II) were viewed as separate and discrete pillars to improving Marine aviation readiness. During the next three years, the Corps will mature these transformational strategies aggressively so they become mutually reinforcing and provide direct alignment with the *Marine Corps Vision and Strategy 2025*.

Current Readiness (CR). Marine aviation commanders and leaders, in concert with the Naval Aviation Enterprise, will plan, execute, and manage the CR process, maximize readiness of equipment and people, optimize material resource allocations and expenditure, and minimize logistics downtime and delays. Leaders will drive CR operations to align Marine aviation with enabling organizations. This alignment will achieve readiness levels, effectively and predictably, to produce core competent aviation squadrons and detachments for warfighting missions.

Marine Aviation Logistics Support Program II (MALSP II). MALSP-II increases Marine aviation's ability to deploy, employ, sustain, and redeploy rapidly to and from in austere regions, as well as to handle potential anti-access and denied-area scenarios. The Naval Aviation Enterprise's continuous process improvement strategy (AIRSpeed) is the key enabler to modernizing the time-tested Marine Aviation Logistics Support Program (MALSP). By applying AIRSpeed, MALSP II becomes the comprehensive aviation logistics program that expands the future ACE's operational freedom of maneuver with a reliable and effective logistics system that is lighter, more adaptive, and proactive. In addition, MALSP II provides an improved solution set for addressing uncertainty, variability, and bottlenecks in the E2E wartime logistics chain.

Marine Aviation Logistics Squadron Future [MALS(F)]. The introduction of new logistics processes and technology will change the organization of the MALS of the future. Under MALS(F), aviation logistics is exploring how the future MALS will be organized in an AIRSpeed-MALSP II environment. The analysis will identify notional skill sets, distribution capabilities and maintenance capabilities for the future MALS.

Ground-Based Air Defense Transformation (GBAD-T)

DESCRIPTION

Ground-Based Air Defense Transformation (GBAD-T) is the Marine Corps' air defense capability, using the High Mobility Mutipurpose Wheeled Vechicle-based Advanced Man-Portable Air Defense System (A-MANPADS) and the Stinger missile to defeat fixed and rotary wing threats. This system is the Marine Corps' only organic air defense system.

OPERATIONAL IMPACT

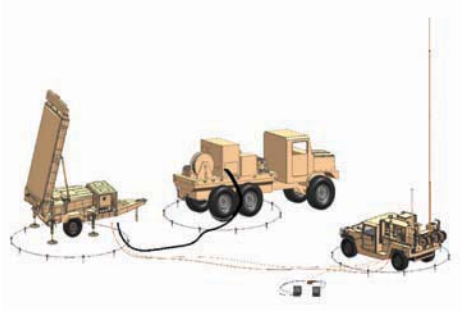
Using A-MANPADS and the Stinger missile, the Low-Altitude Air Defense Battalions (LAAD Bns) provide the Marine Air Ground Task Force low-altitude air defense against enemy air threats. LAAD Bn units deploy with Marine Expeditionary Units as part of the Marine Air Control Group detachment to the command element or composite squadron. As a future capability, the A-MANPADS Increment I program enhances the systems Command, Control, Communications, and Computer suite. The hardware and software upgrade provides an enhanced fire control and air/ground situational awareness capability to the LAAD Bns. Increment I uses Joint Range Extension Application Protocol, a joint certified data link, ensuring compatibility with legacy and future Command and Control architectures. Increment I radios are capable of satellite communications.

PROGRAM STATUS

In May 2009, the Marine Requirements Oversight Council approved the GBAD Initial Capabilities Document (ICD) that validates existing capability gaps against unmanned aerial systems and cruise missiles. The GBAD Analysis of Alternatives, completed in September 2009, was conducted in an effort to identify candidate material solutions for the Stinger replacement that fills the gaps identified in the GBAD ICD. Requirements for Increment I communications enhancements were outlined in a Statement of Need during second quarter FY 2007. A-MANPADS Increment I is scheduled for a Milestone C Decision in the third quarter FY 2010 and Initial Operating Capability is scheduled for first quarter FY 2011. Increment I Full Operational Capability is scheduled for FY 2012.

Procurement Profile:	FY 2010	FY 2011
Section Leader Vehicle	12	10
Fire Units	42	20

Ground/Air Task-Oriented Radar (G/ATOR)



DESCRIPTION

The G/ATOR will be a three-dimensional, expeditionary, short- to medium-range radar able to detect low observable, low radar cross section targets such as cruise missiles, aircraft, rockets, artillery, and mortars. G/ATOR is being developed and fielded in four increments and will be employed by the Marine Air Ground Task Force (MAGTF) across the range of military operations. The four increments will cover both aviation and ground missions and will replace five legacy systems. Increment I will provide an air surveillance 3D gap-filler radar and provide radar cueing data to future Ground-Based Air-Defense (GBAD) equipment in support of MAGTF, joint, and multi-national forces. Increment II will provide counter battery/target acquisition for the ground combat element. Increment III is software upgrades which will provide enhanced combat identification, increased survivability and other system capabilities. Increment IV will provide an expeditionary airport surveillance radar capability to the MAGTF.

G/ATOR will share surveillance data with Common Aviation Command and Control System and will provide radar measurement data to the Navy Cooperative Engagement Capability through the Composite Tracking Network. Its expeditionary design ensures it is deployable via helicopter, KC-130 or ground vehicles during the first stages of operations; thus, it can augment sea-based air-defense sensors and command and control capabilities. G/ATOR will provide naval and joint forces with an expeditionary radar and cruise missile detection capability that extends landward battle space coverage. When fully fielded, the diverse capabilities of G/ATOR and the many war fighting functions it supports will make it highly valued to the MAGTF commander.

OPERATIONAL IMPACT

This multi-role, lightweight radar represents the next generation of critical air and ground warfighting capabilities for Marine Corps and joint force commanders — a scalable, expeditionary and netted sensor/sensor to shooter capable component of the joint force on the battlefields of the 21st Century. G/ATOR will provide increased mobility, improved situational awareness and reduce command decision latency; acting as the landward extension of Sea Shield, enabling Sea Strike and cooperative engagement.

PROGRAM STATUS

G/ATOR was designated a Special Interest Program by the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) in February 2009. The Department of the Navy will continue to be the lead acquisition agency for G/ATOR. The Approved Acquisition Objective is 81 units.

AN/TPS-59(V)3 Radar System

DESCRIPTION

The AN/TPS-59(V)3 Radar System is the Marine Corps' only long-range, 3D, air surveillance, theater ballistic missile (TBM)-capable radar. The AN/TPS-59(V)3 is a transportable, solid-state L-band radar that serves as the Marine Air Ground Task Force's (MAGTF's) principal air surveillance radar and is integrated into the AN/TYQ-23(V)4 Tactical Air Operations Module. The radar may also be configured for operation with the AN/MSQ-124 Air Defense Communication Platform to provide TBM track data to the Joint Tactical Information Distribution System via the Tactical Digital Information Link-Joint Service (TADIL-J) Link-16 network. The radar has become a key component in the employment of the Navy's Cooperative Engagement Capability and is the Marine Corps' lead sensor in the development of the Composite Tracking Network. The radar has been deployed in overseas contingency operations.

OPERATIONAL IMPACT

The AN/TPS-59(V)3 Radar System is optimized to detect and track TBMs and air-breathing aircraft targets that constitute serious threats to MAGTF operations. The radar is employed by the Marine Air Command and Control squadron during sustained operations ashore and as part of the joint theater air and missile defense architecture. The radar supports the MAGTF commander in anti-air warfare operations and en-route traffic control to a distance of 300 nautical miles and TBM surveillance to 400 nm.

PROGRAM STATUS

The AN/TPS-59(V)3 Radar System is in the sustainment phase of its lifecycle. An incremental sustainment strategy of engineering change proposals and technical refresh efforts will address diminishing manufacturing sources, material shortages, and obsolescence issues to sustain the radar beyond the 2020 time frame.

P19A Aircraft Crash Fire Rescue Vehicle Replacement

DESCRIPTION

The P-19A Replacement is an aircraft crash fire rescue vehicle capable of addressing the shortcomings of the current P-19A, which was fielded in the early 1980s. The P-19A Replacement will be equipped with advanced fire-suppression compounds and extinguishing agents, handheld extinguishers, and specialized rescue equipment used by firefighters to extinguish aircraft and structure fires, provide protection for rescue personnel, cool explosive ordnance, extricate injured aircrew members, and dispatch emergency-response capabilities to crash sites. The P-19A Replacement provides the functional capability to minimize the consequences of an aircraft crash.

OPERATIONAL IMPACT

The P-19A Replacement will be delivered to the objective area via strategic airlift (C-17 and C-5) or surface transport modes. Upon arrival at the forward operating base, the vehicle will provide rescue and fire fighting capabilities to the Marine Air Ground Task Force Air Combat Element. The vehicle will provide the same capability in garrison at the supporting establishments. The legacy P-19 fleet is exhibiting considerable readiness issues stemming from reliability and electrical failures due to the age of the vehicles. The current P-19A is a maintenance challenge to station and wing mechanics, resulting in 50 to 75 percent readiness levels. In addition, because of the unavailability of P-19As, some units are not able to conduct the necessary training required to keep firefighting personnel proficient.

PROGRAM STATUS

A Draft P-19A Replacement Capabilities Development Document was released for review in August 2009. The P-19A Replacement will enter the acquisition cycle at Milestone B, scheduled for late FY 2010. P-19 Replacement Initial Operational Capability is planned for FY 2016 and Full Operational Capability for FY 2018.

Procurement Profile: TBD
Quantity: 160

Developer/Manufacturer: TBD

PART 6:

LOGISTICS

INTRODUCTION

Logistics support to the Marine warfighter takes on many forms, involves numerous activities, and spans the Marine Corps. Innovative efforts are underway at all levels to improve logistics support to Marines, whether in peace or war. The Marine Corps Logistics Modernization Strategy will revolutionize how Marines are sustained in garrison and on the battlefield through cutting-edge technologies, process improvements, reorganization actions and the realignment of logistics functions. It will involve the combined efforts of every active duty, reserve, and civilian Marine logistician serving today.

Logistics Modernization (Log Mod)

Logistics Modernization is the transformation of logistics functions to be more capable, effective and responsive to Marine Air Ground Task Force (MAGTF) operations. Log Mod is addressing existing logistics shortfalls, incorporating lessons from Operation Iraqi Freedom and preparing for Expeditionary Maneuver Warfare. Log Mod represents the most comprehensive effort ever implemented by the Marine Corps to improve tactical and operational logistics. Log Mod is a three-pronged improvement and integration initiative that focuses on Marine Corps people, processes and technology to produce a far more effective and efficient Logistics Chain Management process by:

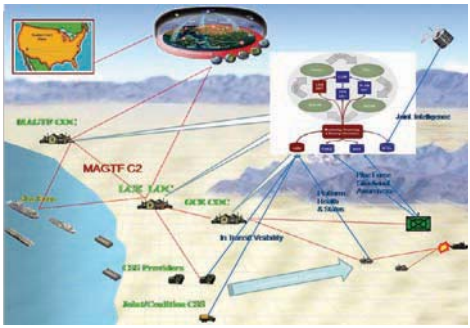
- Using the Logistics Operational Architecture to support improvements to Marine Logistics Group (MLG) organizations, enhance command and control, and integrate our distribution, maintenance and supply capabilities
- Modernizing and integrating Information Technology through the acquisition and fielding of the Global Combat Support System-Marine Corps
- Modernizing human capabilities with new occupational specialties, more uniform, deployable organizational components and logistics education with effective change management and communications

Log Mod initially comprised the following initiatives:

- Logistics Operational Architecture
- Command and Control for Logistics
- MAGTF Distribution
- Realignment of Maintenance
- Realignment of Supply
- Marine Logistics Group Reorganization

Through lessons learned from Operation Iraqi Freedom and Operation Enduring Freedom, maturation within the Marine Corps combat development process, growth of the Marine Corps, establishment of logistics advocacy, and results of a series of war game efforts, Logistics Modernization has evolved in scope to best provide future logistics capabilities to best support the MAGTF across the range of military operations.

Sense and Respond Logistics



The increasing agility, force projection, and speed of command required on the distributed battlefields of today and tomorrow require an adaptable, flexible, and self-synchronizing logistics support network to maintain operational advantage. Marine Air Ground Task Force (MAGTF) Sense and Respond Logistics is both a strategy and ultimately a technical approach by which the Marine Corps will develop and field these current and future capabilities in support of *Marine Corps Vision and Strategy 2025*, *Marine Corps Operating Concepts for a Changing Security Environment*, the *Marine Corps Service Campaign Plan*, the *Marine Corps Logistics Roadmap*, and ongoing USMC Logistics Modernization. As an overarching enterprise/portfolio strategy, MAGTF Sense and Respond Logistics will leverage existing service, joint, and Department of Defense (DoD) programs and guide key investments in future logistics capabilities to seamlessly integrate with and share information across the Command and Control, Maneuver, and Intelligence domains.

The foundation to achieve this MAGTF Sense and Respond Logistics capability will be the integration and synchronization of four capability approach areas: Logistics Management Information; Decision Support; Logistics Chain Management; and Command and Control for Logistics. Key capabilities will include Global Combat Support System–Marine Corps, Autonomic Logistics–Marine Corps, Automated Information Technologies, and decision-support capabilities such as intelligent course of action support, risk and opportunity cost assessment, and dynamic planning and re-planning.

One primary example of how MAGTF Sense and Respond Logistics will expand the tactical flexibility and operational reach of commanders is the Autonomic Logistics-Marine Corps. Autonomic Logistics will provide enhanced platform and weapon system diagnostics and prognostics, to include collecting mission-critical data (position, location, identification, fuel and ammunition levels, equipment health, and mobile loads) that will provide commanders with real-time combat endurance assessments for their units. Autonomic Logistics supports DoD implementation of Condition Based Maintenance Plus, as well as improved Total Life Cycle Management and affordability.

The Marine Corps is also partnered with the Navy and the Office of Naval Research through Naval Logistics Integration to develop Sense and Respond capabilities that integrate Naval Expeditionary Combat Command shore units within the MAGTF.

Naval Logistics Integration

On a day-to-day basis, the naval services maintain a persistent presence in forward areas. Across the globe, Naval Logistics Integration (NLI) enables the support of globally dispersed maritime forces through integrated coherent, rapid, and agile logistics capability, with a focus on sustainment and end-to-end naval logistics support for the warfighter — afloat and ashore. NLI directly supports *Marine Corps Vision and Strategy 2025, Marine Corps Operating Concepts for a Changing Security Environment*, the *Marine Corps Service Campaign Plan*, the *Marine Corps Logistics Roadmap*, and ongoing USMC Logistics Modernization, as well as the tenets of Sea Power 21, the Naval Operational Concept, Joint Vision 2020, the Navy's Concept for Joint Logistics, and the Tri-Service Maritime Strategy. These strategic documents provide the framework by which the Navy and Marine Corps will operate and support joint warfighting capabilities.

The end-state objective of NLI is an integrated logistics capability that operates seamlessly whether afloat or ashore across the range of military operations to support and sustain operating MAGTF units in a joint warfighting environment. NLI is challenging the status quo in science and technology, policy and doctrine, business practices and processes, and training and education.

NLI has enabled dramatic improvements in sustaining deployed Navy and Marine Corps operating forces by pursuing a number of initiatives. The Navy's Cargo Routing Information File (CRIF) more accurately tracks ship movements which has reduced customer wait time by more than 50 percent for critically needed materiel shipments, with deployed Marine Expeditionary Units routinely reporting receipt of urgently needed items within ten days while afloat. The Navy's Advanced Traceability and Control (ATAC) system, fielded to Marine units, has expedited the shipment of more than 128,000 repairable components with better than 99 percent proof of delivery for more than 25 million pounds of cargo with a value of $83 million since fielded in FY 2005. Moreover, the cost to ship has reduced from $4.28 to $1.95 per pound during this period.

The NLI effort is also exploring new initiatives for the integration and optimization of critical Navy and Marine Corps logistics capabilities ashore. Initiatives include a Total Life Cycle Management (TLCM) approach to the common acquisition of ground personal protective and chemical-biological protective equipment; common depot-level maintenance capacity management; common tactical level equipment maintenance; and common material requisitioning capabilities.

NLI is a formal and collaborative effort between HQMC and OPNAV with extensive, ongoing participation of the MARFORs and Numbered Fleets. The NLI homepage is hosted on the Navy Knowledge Online (www.nko.navy.mil) portal under the expeditionary logistics community link.

Marine Air Ground Task Force (MAGTF) Distribution

MAGTF Distribution strives to seamlessly execute inbound and outbound movements for all classes of supply while maintaining Total Asset Visibility (TAV) and In-Transit Visibility (ITV) throughout the distribution pipeline. These capabilities are needed in the operating forces to mitigate unsynchronized and sub-optimized distribution support to the warfighter, both in garrison and while deployed. The shift in defense planning in countering asymmetric threats drives the need for a rapid, flexible, and precise distribution system. The future Marine Corps operational concepts to meet the new threats require a distribution system that can support Marines dispersed while afloat and ashore and operating within compressed decision timelines. The MAGTF Distribution initiative is addressing this challenge. This concept describes a logistics process that enables a MAGTF to maintain a high operational tempo through effective management, coordination, and use of end-to-end distribution capabilities. MAGTF Distribution is a shared responsibility across all elements of the MAGTF. Key objectives of the MAGTF Distribution initiative are to:

- To enable visibility across the distribution chain
- To establish roles and responsibilities for managing MAGTF distribution capabilities
- To achieve centralized control of the MAGTF distribution chain
- To initiate and integrate people, processes, and technologies via new doctrine, organizations, training, and material solutions

MAGTF Distribution is accomplished through the synchronization of all elements of the distribution system to include visibility, capacity, and control in order to successfully deploy and sustain a MAGTF engaged in crisis-response and combat operations. This synchronization integrates distribution processes for materiel, services, and people into a single integrated process across the strategic, operational, and tactical levels of war. MAGTF Distribution involves several key enablers:

- **Automatic Identification Technology (AIT)**, a suite of technologies, enables and facilitates the identification and rapid transmission of machine-readable data to Automated Information Systems (AIS) to enhance the readiness of deploying forces with improved knowledge of equipment. **Radio Frequency Identification (RFID)**, a form of AIT, uses low-powered radio transmitters to read data stored in an RFID tag at distances of one inch to 100 feet to track assets, manage inventory, and authorize payments.
- **Last Tactical Mile (LTM) ITV** is a lightweight, innovative solution that augments existing in-transit visibility systems with barcodes and RFID tags combined with mobile satellite computing to enable near-real-time in-transit visibility and confirmation of delivery for sustainment items from a Combat Logistics Regiment (CLR) to the supported unit.

- **Automated Manifest System - (AMS) Tactical (AMS-TAC)** uses AIT (optical memory cards (OMC), 2D barcodes, RF tags, and handheld terminals) to improve ITV/TAV through management reports, database searches, records editing, file conversion to provide near real-time cargo movement data; AMS-TAC is being modified to transmit ITV data to GTN via Cargo Movement Operations System (CMOS) and to provide receipt data to CMOS.

Feeding Marines

Changing Expectations for Garrison Mess Hall Operations. Mealtime while in garrison should provide Marines a break from their daily routine to relax and renew. To this end, new menus have been developed and the eating environment and operating hours have been tailored to fit high-tempo lifestyles. New menu offerings provide food items that mess hall patrons desire while balancing health and nutrition. Options include Fusion (food made to order upon request); Market Street Grill (similar in concept to Boston Market™) providing an upscale fast food menu including gourmet hamburgers, pizza and focaccia bread sandwiches; and an extensive soup, salad bar, and dessert bar. Alternative menu initiatives implemented in past years include the SubMarine program (made-to-order sandwiches); Simply-to-go (take-out meals); and Xtreme Burrito Program. Another welcome change is the extended hours of operation offered at select mess halls, providing patrons flexibility beyond traditional meal hours. These initiatives are designed to provide the very best service possible and are in keeping with questions and ideas that have surfaced from myriad customer surveys — ensuring that the Individual Marine remains the focus of attention.

Transitioning Expectations For Field Feeding Operations. On par with actions taken to support garrison mess hall operations, field feeding has taken on the challenge to support the needs of Marine warfighters by investing in new technologies and equipment capable of preparing the highest quality meals in the most austere environments. One of the ways that this is being achieved is with the fielding of the Enhanced Tray Ration Heating System, which will increase a unit's capability to prepare a wider variety of rations and provide the means to serve up to a company-sized unit (twice daily) in forward remote areas. This capability is packed, stored and transported in a Small Field Refrigeration System, allowing the unit to double as a field refrigerator and the system's embarkation container. Another field feeding system that is currently in research and design is the Expeditionary Field Kitchen (EFK). The trailer-mounted EFK is intended to support the entire family of combat rations on a highly mobile and expeditionary equipment platform. When fielded, the EFK can support up to 500 personnel with two hot meals per day. The system allows food service personnel the ability to rapidly setup or tear down the kitchen in support of high-tempo operations and is sure to be the forward feeding solution of the future.

Family of Material Handling Equipment (MHE)

DESCRIPTION

The Marine Corps Family of MHE encompasses a wide variety of material-handling assets, ranging from light forklifts to heavy cranes and container handlers. Specific systems include: Rough-Terrain Container Handler; Extended Boom Forklift; Light-Capability, Rough-Terrain Forklift; High-speed, High-mobility Crane; Air Mobile Crane; Mobile Welding Shop; and, Multi-Purpose, Rubber-Tired Articulated Tractor.

OPERATIONAL IMPACT

Procurement of these systems will ensure that Logistics Combat Element entities have the ability to support the scheme of maneuver and logistical requirements of their supported Marine Air Ground Task Force.

PROGRAM STATUS

The Family of MHE program maintains the Marine Corps' material-handling and transportation-support capability. As such, various items are replaced as determined appropriate by the life cycle manager, Program Manager Engineer Systems. Specific items may be managed as acquisition or abbreviated-acquisition programs, and there are several acquisition programs in progress at any point in time.

Procurement Profile:	FY 2010	FY 2011
Quantity:	Various	Various

Developer/Manufacturer:

Extended boom forklift: JLG Industries, Inc., McConnellsburg, PA

Light-capability, rough-terrain forklift: Terex American Crane, Wilmington, NC

Multi-purpose, rubber-tired, articulated-steering tractor: John Deere, Davenport, IA

All Terrain Crane: TEREX DEMAG CRANES Stafford VA/Germany

Rough Terrain Container Handler: Kalmar LLC, San Antonio, TX

Tactical Welding Shop: Power Manufacturing, Covington, TN

Marine Corps Families of Power and Environmental Control Equipment

DESCRIPTION

The Marine Corps Family of Power Equipment encompasses a portfolio program to continuously procure, update, and replenish more than 30,000 items of power equipment, including skid-mounted and trailer-mounted diesel generators, floodlights, power distribution sets, electrician toolkits, power supplies, radio power adaptors, battery chargers, renewable energy systems, and on-board vehicle power systems. The Marine Corps Family of Environmental Control Equipment continuously procures, updates, and replenishes more than 8,000 items that include tactically hardened Environmental Control Units, refrigerated containers, and refrigeration tool kits. Both families of equipment are used to support all command, ground combat, aviation, and logistics elements throughout the Marine Corps that require tactical power and environmental control in support of air control, communication/information systems, life support systems, and general power/heating-ventilation-air conditioning requirements. Paramount in each family is fielding Environmental Protection Agency-compliant equipment to meet stringent air quality and zero-ozone depleting standards, while maintaining military compatibility, energy efficiency, transportability, durability, and simplicity of operation.

OPERATIONAL IMPACT

Procurement of these systems will ensure that the Command Element, Aviation Combat Element, Ground Combat Element, and Logistics Combat Element entities have the ability to support all requirements of the Marine Air Ground Task Force with deployable and energy-efficient equipment.

PROGRAM STATUS

Within the families of power equipment and environmental control equipment, various items are replaced as determined appropriate by the life cycle manager, Program Manager Expeditionary Power Systems. All items are managed as acquisition or abbreviated-acquisition programs, with multiple acquisition programs in progress at any point in time.

Procurement Profile:	FY 2010	FY 2011
Quantity:	Various	Various

Developer/Manufacturer:
Environmental Control Units – NordicAir Inc, Geneva, OH

Current Tactical Generators – DRS, Bridgeport CT and L-3, Tulsa, OK

Future Tactical Generators – ONAN Cummins, Minneapolis, MN

Battery Chargers – Bren-tronics Inc, Commack, NY

Battery Managers & Analyzers – PulseTech Corp., Waco, TX

Refrigerated Containers – SeaBox Inc, East Rutherford, NJ

Solar Power System – IRIS Technology, Irvine, CA

Power Distribution – LEX Product, Stamford, CT

Floodlights / Generators – Magnum Products, Berlin, WI

Integrated Trailer, ECU& Generator – General Dynamics, Tucson, AZ

On-Board Vehicle Power System – Oshkosh Truck Co., Oshkosh, WI

Lightweight Water Purification System (LWPS)

DESCRIPTION

The LWPS is a lightweight, modular, highly transportable, self-contained water purification system. The LWPS will replace the legacy fresh-water filtration system with an advanced pre-filtration and reverse-osmosis system. Using state-of-the-art technology, the LWPS will provide the capability to purify water from brackish and seawater and Nuclear/Biological/Chemical contaminated water sources. The LWPS is capable of producing 125 gallons per hour (GPH) from fresh water sources and 75 GPH from a natural surface seawater or groundwater source. This production rate allows two LWPS to produce up to 2,500 gallons of water per day — the complete potable water needs of one Marine infantry company.

OPERATIONAL IMPACT

The LWPS provides the capability to produce purified water from almost any water source, significantly reducing the logistics requirements associated with the transport of bulk potable water on a distributed battlefield. An entire system can be transported by a single High Mobility Multipurpose Wheeled Vehicle or helicopter in order to provide flexibility in executing expeditionary operations.

PROGRAM STATUS

A Firm Fixed Price contract was awarded in FY 2008 to Terra Group Corporation. Production Qualification Testing was conducted during fourth quarter FY 2009 at Aberdeen Test Center, Aberdeen, MD; Naval Facilities Engineering Service Center, Port Hueneme, CA; and Marine Corps Base, Camp Lejeune, NC. Field User Evaluation was conducted during the first quarter FY 2010 at Camp Lejeune. Fielding of the LWPS is expected to start in FY 2010.

A total of 146 LWPS will be procured through FY 2012.

Developer/Manufacturer:
Terra Group Corporation

Conventional Ground Ammunition (Class V(W))

DESCRIPTION

Class V(W) Conventional Ground Ammunition consists of more than 300 individual ammunition and explosives items in the Marine Corps ammunition stockpile. These items support all major weapons systems employed by the Marine Corps, including artillery, tank, small arms (such as 9mm, 5.56mm, 7.62mm, and .50-caliber), rockets, missiles, medium caliber (25mm and 40mm), mine-clearance systems, 120mm rifled mortars for the Expeditionary Fire Support System, 30mm in support of the Expeditionary Fighting Vehicle, and the family of 60mm and 81mm mortar ammunition. Conventional ground ammunition also includes individually employed and hand-emplaced material, such as grenades, demolition equipment, pyrotechnics, and signaling devices. Also included are training and mission-unique items, such as non-lethal munitions, Special Effects Ammunition Markings System, and Military Working Dog Scent Kits.

OPERATIONAL IMPACT

Ammunition procurement supports a wide spectrum of Marine Corps requirements that are categorized within two major elements. The first is the War Reserve Munitions Requirement, which includes combat, current operations/forward presence, and strategic readiness requirements. The second is the Training/Testing Requirement, which includes live-fire training and weapons-systems testing. The combination of these two categories constitutes the Marine Corps' Total Munitions Requirement (TMR). With the continuing global missions facing the U.S., it is imperative that the Marine Corps maintains a healthy procurement profile to address the growing demands of the Marine forces for both war-reserve and live-fire training. Past efforts within the ammunition procurement appropriation have helped the Marine Corps to maintain readiness levels while meeting current demands for ammunition and explosives required for current operations. During the past two fiscal years, ammunition investment has allowed for sufficient flexibility in supporting several munitions based urgent need statements generated by the operating forces.

PROGRAM STATUS

The Marine Corps ammunition processes and the current funding profile will continue to ensure sufficient ammunition is available for future combat or peacekeeping operations involving active-duty and Reserve Marine forces. Further, Marine Corps investments will allow ammunition production to keep pace with the phased growth of the Marine Corps.

Developer/Manufacturer:
Small Arms Family: Alliant Tech Systems, Independence, MO; and General Dynamics Ordnance Systems, Marion, IL
Mortar Family: American Ordnance, Milan, TN; Medico, Wilkes-Barre, PA; L3 Communications, Lancaster, PA; HITECH, East Camden, AR; Wilkinson Manufacturing, Port Calhoun, NE; and Armtec Defense Products, Coachella, CA.
Tank Ammunition: Alliant Tech Systems, Plymouth, MN; American Ordnance, Middleton, IA
Artillery Ammunition: Chamberlain Manufacturing, Scranton, PA; and American Ordnance, Middleton, IA
Rockets: NAMMO/Talley Defense Systems, Mesa, AZ; and SAAB Bofors Dynamics, Karlskoga, Sweden

Communication Electronics Equipment Maintenance Complex (CEEMC) Rigid-Wall Shelter

DESCRIPTION

The CEEMC will enhance the conduct of critical Marine Corps electronics equipment maintenance and repair missions. It will replace the Electronics Maintenance Complex (EMC) legacy shelters that were fielded in the early 1980s and have exceeded their life expectancies. The CEEMC Shelter provides standardized expandable rigid-wall shelters that are easily relocated, compatible with current Marine Corps transportation modes, require minimum maintenance, and will protect equipment and personnel while conducting maintenance functions needed to support deployed operations. The CEEMC expandable rigid-wall shelter meets the International Standardization Organization (ISO) certifications, optimizes work space, and is compatible with standard Marine Corps power-generation units, environmental-control units, and transportation assets.

OPERATIONAL IMPACT

The Marine Corps has critical field electronics maintenance capability requirements in support of current operations and global mission needs. The CEEMC will significantly enhance the warfighters' readiness by optimizing the capacity to perform Operator Crew through Field Level repair of satellite radio systems, ground radio systems, telephone systems, fiber optic communication systems, cryptographic equipment, computer systems, Light Armored Vehicle (LAV) weapons systems, and small arms.

PROGRAM STATUS

CEEMC will move into its Phase II, Milestone C (Production and Limited Fielding), during fourth quarter FY 2009. This approval authorized the procurement and build out of four additional shelters to be fielded and used by the operating forces for a period of approximately six months in order to identify any engineering changes prior to going into full production. The first of these four shelters was issued to 1st Marine Expeditionary Force (MEF) during first quarter FY 2010, and the remaining three shelters will be issued to I and II MEFs during first and second quarter FY 2010. The CEEMC Shelter also underwent ISO testing and recertification during first quarter FY 2010. Other current efforts include the completion of requisite acquisition documentation; logistical and lifecycle management planning; and, further coordination with all stakeholders in preparation for Phase III, Full Fielding in third quarter FY 2010.

Procurement Profile:	FY 2010	FY 2011
Quantity:	16	12

Developer/Manufacturer:
Guichner Shelter Systems, Dallastown, PA

Family of Tactical Soft Shelters (FTSS)

DESCRIPTION

The Marine Corps FTSS are shelters for tactical use that maximize modularity, ease of use, operational effectiveness, durability, and the ability to connect with vehicles and like shelters. It includes the Expeditionary Shelter System, General Purpose Medium Shelter, Lightweight Maintenance Enclosure, Combat Tent, 10-Man Arctic Tent, and the Extreme Cold Weather Tent.

OPERATIONAL IMPACT

The FTSS will provide protection from the natural environment to the operating forces for use in varied mission roles (e.g., Command and Control, Administration, Billeting, Supply, Medical, Dental and Messing). The FTSS is not designed to counter a specific threat. Rather, it is intended to improve the effectiveness with which a variety of battlefield functions are accomplished.

PROGRAM STATUS

The FTSS is currently in Post Milestone C and is being fielded to the operating forces.

Procurement Profile:	FY 2011	FY 2012
Quantity:	11,200	10,212

Developer/Manufacturer:
Utilis USA, Fort Walton Beach, FL
Outdoor Ventures Corporation, Stearns, KY
Diamond Brand, Arden, NC
Johnson Outdoors, Binghamton, NY
Base-X Inc., Fairfield, VA
Camel Manufacturing Company, Pioneer, TN

PART 7:

MARITIME SUPPORT

INTRODUCTION

Marines have always been "soldiers of the sea." When the Continental Congress decided on November 10, 1775 to raise two battalions of Marines, it specified "…that particular care be taken, that no such person…enlisted into said battalions, but such as are good seaman, or so acquainted with maritime affairs as to be able to serve to advantage by sea when required." Colonel Commandant John Harris wrote in 1863, "We are of the Navy; are governed by Naval Regulations on shore and afloat…." During Operation Desert Storm, the Chairman of the Joint Chiefs of Staff, General Colin Powell, remarked, "Lying offshore, ready to act, the presence of ships and Marines sometimes means much more than just having air power or ship's fire, when it comes to deterring a crisis. And the ships and Marines may not have to do anything but lie offshore."

The close relationship between the Navy and the Marine Corps, tempered by operations and combat in every corner of the world since the War of Independence, remains strong today. Whether on board ship or on the ground, the individual Marine remains at heart a "soldier of the sea."

The forward-deployed Navy-Marine Corps Team provides the Combatant Commanders with scalable options for presence, security force assistance, crisis response, and combat power. Marines deployed on naval shipping combine forward presence with flexible and scalable response forces. Together, as America's force in readiness, we represent the United States on the high seas, in the littorals and ashore, and will continue to play a pivotal role in protecting vital interests. Under the 2007 tri-service maritime strategy, *A Cooperative Strategy for 21st Century Seapower*, we will work closely with the Navy and Coast Guard. Individual Marines, Sailors, and Coast Guardsmen represent a military partnership that is second to none.

Amphibious Warships

Amphibious warfare ships are the centerpieces of the Navy/Marine Corps' forcible-entry and seabasing capability and have played essential roles in global operations. These ships are equipped with aviation-assault and surface-assault capabilities, which, coupled with their inherent survivability and self-defense systems, support a broad range of mission requirements. They provide the most formidable expeditionary forcible-entry capability in the world, the development and maintenance of which is the responsibility of the Marine Corps under U.S. Code Title X.

The Marine Corps operational requirement is for two Marine Expeditionary Brigade Assault Echelons (MEB AE) of forcible-entry capability reinforced by an additional MEB from the Maritime Prepositioning Force (Future). The two-MEB AE forcible-entry capability requires 34 amphibious warfare ships (17 ships per MEB). When forward-presence requirements are considered with the 2.0 MEB lift requirement, AE requirements total 38 ships. Of these 38 ships, 11 must be aviation-capable large-deck ships (LHA/LHD/LHA(R)) to accommodate the MEB's Aviation Combat Element.

Ten large-deck ships (eight *Wasp*-class LHDs and two *Tarawa*-Class LHAs) are in service in the spring of 2010. The eighth *Wasp*-class multi-purpose amphibious assault ship, the USS *Makin Island* (LHD 8), was delivered in 2009. LHD 8 is similar to LHD 1 through LHD 7 but is powered by gas turbine engines and has all-electric auxiliaries.

AMPHIBIOUS ASSAULT SHIP REPLACEMENT (LHA(R))

The amphibious fleet is organized for persistent forward presence and includes nine Amphibious Ready Groups — each comprising three amphibious ships. The centerpiece of the ARG is a *Wasp* (LHD 1)-class or *Tarawa* (LHA 1)-class amphibious assault ship. The *Tarawa*-class amphibious assault ships reach the ends of their expected service lives between 2015 and 2018. The first of three LHA Replacement (LHA(R)) ships, the USS *America* (LHA 6), began construction in 2008. LHA 6 design modifications optimize aviation support for MV-22 Osprey and F-35 Joint Strike Fighter operations. Removal of the

well deck provides for an extended hangar deck with two wider high-bay areas, each fitted with an overhead crane for aircraft maintenance. Other enhancements include a reconfigurable command and control complex, a hospital facility, and extensive support activities.

SAN ANTONIO-CLASS (LPD 17) AMPHIBIOUS TRANSPORT DOCK SHIP

The LPD 17 *San Antonio* class amphibious warfare ship represents the Department of the Navy's (DoN) commitment to a modern expeditionary fleet and will assist the Marine Corps's naval forces across the spectrum of warfare. The first five ships of the class — the USS *San Antonio* (LPD 17), USS *New Orleans* (LPD 18), USS *Mesa Verde* (LPD-19), USS *Green Bay* (LPD-20), and USS *New York* (LPD-21) — have been commissioned as of early 2010. The *San Antonio* class LPDs will replace the remaining ships of the LPD 4 *Austin* class.

The class' unique design facilitates expands force coverage and decreases reaction times of forward-deployed Marine Expeditionary Units. In forcible-entry operations, the LPD-17 helps maintain a robust surface assault and rapid off-load capability for the Marine Air Ground Task Force well into the future. The San Antonio class warships incorporate advanced characteristics for amphibious ships. Each ship has 699 enhanced berths for embarked Marines, plus a surge capacity of another 101 berths. Each also has a vehicle-stowage capacity of 24,600 square feet, cargo-stowage capacity of more than 33,000 cubic feet, and a well-deck sized for two Landing Craft Air Cushions (LCAC) or one Landing Craft Utility. Flight decks can support operations by two CH-53E/K Super Stallions, two MV-22 Osprey tilt-rotor aircraft, or four CH-46E Sea Knight helicopters. The ships in this class are outfitted with two Rolling Airframe Missile launchers for self-defense and incorporate design features that present a significantly reduced radar cross-section, compared to previous amphibious ships.

Joint High Speed Vessel (JHSV)

The Joint High-Speed Vessel (JHSV) will provide the critical intra-theater, surface-connector capability that will enable the Joint Force Commander to project forces and sustainment at high speeds over operational distances. The JHSV will be capable of self-deploying to the theater of operations and, once in theater, provide the high-speed means to move forces and supplies within that theater. Specifically, the JHSV will provide the capability to deliver equipment, personnel and supplies over the intra-theater ranges to shallow, austere, and degraded ports. It will provide support to seabasing and will bridge the gap between low-speed sealift and high-speed airlift.

The JHSV reached Milestone B in November 2008, which authorized system design development and detailed design. Low rate initial production was also approved. The JHSV lead ship is scheduled to deliver in FY 2012 with additional ships to follow in the subsequent years. The contract includes options for nine additional vessels to be awarded between FY 2009 and FY 2013. In the interim, high-speed vessels will continue to be leased in the Pacific Command area of responsibility to satisfy compelling requirements.

Landing Craft Air Cushion (LCAC) / Ship to Shore Connector (SSC)

The LCAC is a high-speed, fully amphibious craft with a design payload of 60 tons at speeds in excess of 40 knots and a nominal range of 200 nautical miles. The LCAC's ability to ride on a cushion of air allows it to operate directly from the well decks of amphibious warships and to access more than 70 percent of the world's beaches, compared to 17 percent for conventional landing craft. A service life extension program (SLEP) began in late 2000 for the 72 active LCACs, which provides major refurbishment that will extend craft life to 30 years and increased payload capacity from 60 to 75 tons in an overload condition. The goal is to carry out five LCAC SLEPs per year. During SLEP, LCACs receive a system upgrade that includes new command, control, communication, and navigation equipment; buoyancy box and rotating machinery refurbishment; enhanced engines; and upgrades of the current skirt system with an improved deep skirt, thereby increasing the performance envelope.

The Ship-to-Shore Connector (SSC) is the planned replacement for the in-service LCACs and the LCAC (SLEP) as these craft reach the ends of their service lives. In December 2007, the Navy Resources, Requirements Review board selected the 73 Short Ton Air Cushion Vehicle concept in the approved Initial Capabilities Development Document as the SSC platform. The program has achieved Milestone A and a set-based design has been completed. A Request for Proposal for Detail, Design, and Construction is planned for release in FY 2010, with contract award expected in FY 2011, and delivery of the test and training craft in FY 2016.

Future of Marine Corps Prepositioning

The Marine Corps' current prepositioning programs provide the equipment and supplies for elements of three Marine Expeditionary Brigades (MEBs) afloat and elements of a fourth MEB in Marine Corps Prepositioning Program–Norway (MCPP-N). The current program, however, must continue to evolve to meet the challenges of a strategic environment with greater anti-access challenges. Marine Corps prepositioning, both ashore and afloat, is programmed for significant change through 2025. The most marked changes will occur in the afloat program, where the capability to conduct sustained sea-based operations with limited host nation infrastructure in the Joint Operating Area (JOA) will provide a greatly expanded set of options for the Combatant Commanders. A detailed integration plan has been developed to ensure the new capabilities are seamlessly incorporated into the existing program. The plan described below depicts how the new platforms will be integrated and provides a snap shot of the capability of the program at different timeframes.

By 2010, each Maritime Prepositioned Squadron (MPSRON) will have gained increased organic ship-to-shore movement capability with the complete fielding of the Integrated Navy Lighterage System (INLS). The INLS provides operability in higher sea states and greater throughput capacity than the legacy lighterage it replaces. Through 2011, the Maritime Prepositioning Force (MPF) squadrons will be recapitalized with Military Sealift Command (MSC) either purchasing or terminating the leases on the current leased ships. The recapitalization plan also includes the purchase of a general-purpose container ship and a tanker ship. The final major enhancement that will occur in this time period is the integration of one Large Medium-Speed Roll-On Roll-Off (LMSR) ship into each MPSRON. The LMSRs will provide more stowage space to accommodate the larger and more numerous equipment of the programmed MEB. The addition of the three LMSRs will provide a net increase of more than 400,000 square feet, or 18 percent, by 2011. The first LMSR, USNS *Sisler*, was integrated into MPSRON-1 in 2008. USNS *Dahl* joined MPSRON-3 in January 2010, and USNS *Seay* will join MPSRON-2 in January 2011.

While the current prepositioning program provides significant capability to the Combatant Commanders, it is limited in some areas, especially the ability to conduct sea-based operations. The closure of forces requires a secure airfield and a secure port or beach landing site in the JOA — a significant constraint on some operations. Current MPF platforms can embark limited personnel pier side, at anchor, or via a single-spot flight deck capable of supporting rotary wing operations, including the CH-53E. However, the platforms lack the billeting and support services to facilitate a sea-based force. Equipment and supplies are currently administratively stowed to maximize all available space. This "dense packing" of the ships precludes the conduct of assembly operations aboard MPF

ships. Current platforms can support the limited employment of forces from a sea base; however, this requires significant planning prior to backloading the ships during the preceding MPF Maintenance Cycle. Since there are no maintenance facilities aboard current MPF vessels, all reconstitution must be done ashore before back loading any of the equipment or supplies.

Between 2012 and 2016, new MPF ships will be integrated to the MPSRONs. Each new platform will incrementally transform the existing MPSRONs and provide an immediate operational benefit to the Combatant Commanders. A Mobile Landing Platform (MLP) with associated Ship-to-Shore Connectors will provide the squadrons their first organic over-the-horizon surface connector capability. The Dry Cargo/Ammunition (T-AKE) ship will enable the selective access of supplies allowing the building of tailored sustainment packages for the forces operating ashore. During this transition period, training and exercises will focus on the development of new tactics, techniques, and procedures as well as doctrinal and organizational changes to fully realize the enhanced ability and operational utility of afloat prepositioning. The LMSR will interface with the vehicle transfer system on the MLP permitting at-sea transfer of equipment and personnel through NATO sea state three.

Naval Surface Fire Support (NSFS) Initiatives

Firepower, including responsive, lethal and persistent fires from U.S. Navy surface ships, is essential in expeditionary operations. A robust, around-the-clock, all-weather, sea-based surface fire support capability is vital to the success of naval forces engaged in littoral combat operations. The current Naval Surface Fires Support (NSFS) capability does not meet required range, volume, and accuracy for supporting expeditionary operations throughout an extended battlespace. The Navy continues to pursue development and testing of an extended-range and guided-fire support capability to support the Marine Corps *Vision and Strategy 2025* and the combined-service strategic vision articulated in *A Cooperative Strategy for 21st Century Seapower*.

In December 2005, The Joint Requirements Oversight Council validated the Joint Fires in Support of Expeditionary Operations in the Littorals Initial Capabilities Document (ICD). The ICD identified NSFS as a potential solution to mitigate gaps in weapons and engagement capability in the littoral environment. The gaps include the ability to engage targets in close support of maneuver forces or when collateral damage is a concern, the ability to provide volume effects over an area target or for sustained periods of time, and the ability to engage moving point and area target under restricted weather conditions. An Analysis of Alternatives (AoA) is being conducted to determine what weapons systems and platforms will meet the ICD requirements. This AoA will be the basis for a combined Marine Corps/Navy strategy to map out those programs and initiatives necessary to address the recognized gaps in fire support capability and capacity.

Beginning in 2014, the Navy will field a fully integrated, transformational fire support system: the DDG 1000 *Zumwalt* class multi-mission destroyer. Equipped with two 155mm Advanced Gun Systems (AGS), each with a 300-round magazine, the DDG 1000 will add considerable firepower and flexibility to an Expeditionary Strike Group or Expeditionary Strike Force. The AGS, firing the Long-Range Land-Attack Projectile, will increase the lethal effects of the Marine Air Ground Task Force (MAGTF) NSFS fires to greater than 63 nautical miles. The DDG 1000 will also be the first naval ship designed to integrate counter-fire detection with the dual-band radar (DBR). The DBR will be networked

to the ground and naval sensors network and can digitally communicate the information to the Supporting Arms Coordination Center or Fire Support Coordination Center for engagement.

Future technologies will further develop transformational NSFS. New science and technology efforts are underway, which include the Electromagnetic Rail Gun. Future battlefield commanders may harness the destructive power of mach 7+ propelled projectiles launched by electromagnetic energy generated on board the Navy's future family of all-electric ships. The Marine Corps will continue to monitor developing technologies with an eye toward how they might be integrated to support future operating concepts.

NSFS will offer a complementary capability to tactical aviation and ground fire systems, completing the joint triad of fires. Emerging capabilities will reshape the way fires are planned and used by the MAGTF. With continued commitment, the Marine Corps and the rest of the Joint community can rely upon NSFS as readily available, all-weather fire support systems capable of engaging targets across the full range of military operations in the littorals.

Mine Countermeasures (MCM)

A family of Navy and Marine Corps MCM systems is being developed and fielded to allow joint/combined sea-based forces to conduct expeditionary operations at a time and place of our choosing, to include terrain defended by anti-access systems such as mines and obstacles. Tactics, techniques, procedures, and material solutions are being developed to support seamless naval expeditionary operations throughout the littoral and beyond.

FROM THE STERN GATE THROUGH THE BEACH

Sea-based forces first require an effective mine countermeasures capability to open and maintain sea lines of communication and to operate within the littoral battle space. The ability to operate in areas defended by enemy mines and obstacles requires a family of capabilities, which includes detection, location, neutralization, marking, and data dissemination. This family of capabilities will allow commanders to detect and avoid mines and obstacles when possible, and breach when necessary.

In conducting Operational Maneuver from the Sea (OMFTS) and Ship-To-Objective-Maneuver, the Marine Corps relies upon the Navy to maneuver its expeditionary forces to the beach, allowing the deployment and prosecution of operations ashore. Forces, equipment, and supplies will have to cross the beach regardless of future vertical-lift capabilities. In specific areas of national strategic interest, the assault force faces challenges in detection and avoidance of littoral waters and landing beaches fouled by mines and obstacles. In these areas of present and future interest, suitable landing beaches are limited—and our potential adversaries are aware of them.

The Navy's triad of deep-water MCM capabilities resides in surface mine countermeasure ships, airborne mine countermeasure helicopter squadrons, and underwater mine countermeasure teams consisting of explosive ordnance disposal (EOD) detachments, equipped with marine mammal systems and unmanned vehicles. The MCM triad stands ready to conduct large-area or long-endurance MCM operations from deep water to the 40-foot depth contour.

The Navy is engaged in an effort to augment the triad with MCM systems embarked on ships of Carrier and Expeditionary Strike Groups, as well as equipping the Littoral Combat Ships with MCM mission modules. These are designed to provide a self-contained, "organic" capability to detect, avoid, and/or neutralize mines within an operationally acceptable timeline and with acceptable levels of operational risk. This next generation of systems includes the Remote Mine-Hunting System and the MH-60s Mine warfare helicopter with advanced sonar and sweep gear among others.

The physics of ship-draft requirements, sensor and system operating limits, diver physiology, mine characteristics, and an extremely dynamic environment, combined with the requirement for covert operations and many other factors, limit effectiveness of deep water systems

in very shallow water (VSW - 10 to 40 feet deep), the surf zone (SZ - 10 feet to the beach), and Beach Zone (BZ) operations.

In response, the Navy has developed a specialized family of capabilities to contend with mines and obstacles in these technologically challenging environments. Explosive Ordnance Disposal Mobile Unit 1 (EOD MU 1), formerly known as the Naval Special Clearance Team 1 (NSCT-1), which consists of a 180-man unit composed of Navy EOD, Marine Reconnaissance Divers, and support personnel—fulfills an important part of the requirement. EOD MU-1 employs unmanned underwater vehicles, marine mammals, and divers to conduct low-visibility mine exploration, reconnaissance, and clearance operations in waters from 40- to 10- feet deep and Beach Zone (BZ) operations. Data collection devices such as the Coastal Battlefield Reconnaissance and Analysis (COBRA) System will provide the Navy and Marine Corps with essential visual reconnaissance information on mine lines and SZ/BZ defenses. The Navy's science and technology effort is also investigating the effectiveness of precision-delivered Joint Direct Attack Munitions (JDAM) against certain SZ/BZ mines and obstacles. The JDAM Assault Breaching System (JABS) capability provides a limited SZ/BZ MCM, obstacle breaching capability.

In the long-term, the science and technology endeavor is pursuing "smart" bomb- and gun-delivered munitions designed to destroy concentrations of SZ/BZ mines. This includes the Navy's Counter Mine System (CMS) which uses a spray of small darts to neutralize mines in the beach and surf zones. This promising technological approach offers the potential for standoff operations and the removal of men and mammals from the minefield—two key MCM goals.

THROUGH THE BEACH AND BEYOND

Once ashore, naval expeditionary forces must be capable of detecting, breaching, clearing, proofing, marking mines and obstacles, and the dissemination mine and obstacle data across the Naval Forces from the critical Navy-Marine Corps handoff in the vicinity of the beach exit to the force objectives and beyond. Marine Corps commanders must be able to detect and avoid landmines and Improvised Explosive Devices and obstacles when possible, and breach them when necessary. The Marine Corps' current inventory of MCM systems includes the AN/PSS-14 Mine Detector (which utilizes ground penetrating radar to locate mines), explosive breaching systems-the Assault Amphibian Vehicle with Mk154 Triple-Shot Line Charge, Mk155 Mine Clearing Line Charge (MICLIC), and Anti-Personnel Obstacle Breaching System (APOBS)—and mechanical breaching/clearing/proofing systems (M1 tank with track-width mine plow and armored D-7 dozer). In aggregate, these systems provide a limited and aging deliberate breaching capability. They do not meet the detection, speed, and responsiveness requirements of the modern battlefield.

The Assault Breacher Vehicle (ABV) has been fielded to meet its Initial Operational Capability scheduled for fiscal year 2009. ABV is a single-platform minefield breaching/clearing/proofing/marking system that possesses the speed and mobility of modern mechanized forces. Combining two Mk155 Line Charges, a Full-Width Mine Plow, and a breached lane marking system on an M1 tank chassis, the ABV will offer deliberate and "in-stride" breaching capabilities—allowing commanders to maintain initiative and momentum.

MCM doctrine, training, and equipment are continuously evolving to cover capability gaps, replace obsolete equipment, and meet the challenges posed by newer threats, such as the greatly increased use of Improvised Explosive Devices (IEDs), off-route mines, and anti-helicopter mines.

Current Marine Corps MCM systems face challenges in providing force commanders with the desired "in-stride" capability to achieve and maintain initiative and momentum in a full spectrum anti-access environment. The Marine Corps has a MAGTF MCM master plan, designed to fill remaining capability gaps and provide a road map for the future.

PART 8:

TRAINING AND EDUCATION

INTRODUCTION

The training and education of Marines is the cornerstone of ensuring that the Marine Corps remains the world's premier warfighting organization. The training associated with preparing Marines for the full spectrum of conflict is demanding and ensures that they are ready for the challenges of an uncertain world. Through a deliberate building-block approach to training and education conducted at world-class facilities, the Marine Corps continues to provide the individual Marine and Marine organizations, from fire teams to Marine Expeditionary Brigades, with the requisite skills to meet their assigned mission essential tasks. This training is enhanced with the integration of modeling, simulation, and training systems.

As the Marine Corps reduces force levels in Iraq and at the same time continues combat operations in Afghanistan, we are simultaneously reconstituting the force to ensure our ability to meet both current and future requirements. Looking toward the uncertain future, we will continue to maintain our irregular warfare skills developed in support of Operations Iraqi Freedom and Enduring Freedom, while also revitalizing core skills required to maintain a truly multi-capable force able to prosecute actions across the Range of Military Operations.

Future conflicts will likely consist of a hybrid of conventional war, irregular challenges, terrorism and criminal activities, involving states, proxy forces, and armed groups. Preparing the Marine Corps for hybrid challenges in complex environments requires proficiency across six core competencies as outlined in the *Marine Corps Vision and Strategy 2025*.

To meet these challenges, the Marine Corps Training and Education Command will provide a training environment that is responsive and relevant, preparing individual Marines and Marine Corps units via targeted, progressive training and continuous assessment.

Individual and MAGTF Training

Our individual training begins at our recruit depots where young men and women are transformed into United States Marines through a thorough indoctrination to our history, customs and traditions, thereby imbuing them with the mental, moral and physical foundation necessary for successful service to Corps and Country. Our training develops physically fit, tactically and technically proficient warriors of high moral character with a bias for action, possessing the courage to make ethically sound decisions, and capable of properly preparing and leading Marines to successfully accomplish their unit's mission in combat. As Marines progress through the ranks, they develop skills within and beyond their military occupational specialty that will allow them to perform challenging missions across a wide range of military operations. As we look towards an uncertain future, a primary individual training focus area for the Marine Corps is the improvement of our small unit leaders' intuitive ability to assess, decide, and act while operating in a more decentralized manner.

MAGTF TRAINING

Amphibious Core Training. The Marine Corps is developing and refining key training programs to reinvigorate our amphibious capability. The Training and Education Command (TECOM) is preparing individual Marines through training and education at the Marine Corps Expeditionary Warfare School, the Marine Corps Command and Staff College, and various courses at the Expeditionary Warfare Training Groups Atlantic and Pacific, such as the Type Commander Amphibious Training. We will prepare Marine Air Ground Task Forces (MAGTFs) by training alongside the Navy through such exercises as amphibious landing exercises and Marine Expeditionary Brigade (MEB) exercises.

Combined Arms Exercise – Next (CAX-Next). TECOM is developing the next generation of battalion, regiment, and MEB-level combined arms exercise program. This program will be similar in scale to the type of combined arms training that was conducted prior to Operations Iraqi Freedom and Enduring Freedom and the Mojave Viper pre-deployment training program. It will include all elements of the MAGTF including command elements, ground combat elements, logistics combat elements, and aviation combat elements. CAX-Next will provide the force with the combined arms skills that make the MAGTF a force multiplier, as well as continue to reinforce the skills necessary for counter insurgency operations.

MAGTF Large-Scale Exercise (LSE). The MAGTF LSE is a Marine Expeditionary Brigade and Marine Expeditionary Force-level exercise program within a joint context that will include live/virtual/constructive training linked through a supporting network across the United States and with amphibious forces afloat. MAGTF LSE will increase joint and amphibious capabilities as the Marine Corps reconstitutes its full amphibious capability.

Joint, Intergovernmental, and Multi-national (JIM) Training

Leveraging several joint initiatives from the Office of the Secretary of Defense (OSD), the Chairman Joint Chief of Staff, and the U.S. Joint Forces Command, TECOM incorporates joint, interagency, and multinational training context into dynamic, capabilities-based training in support of national security requirements.

Joint Training. Through the OSD-sponsored Joint National Training Capability (JNTC), TECOM has integrated specific joint context solutions to identified joint training shortfalls at U.S. Marine Corps Joint National Training Capability-accredited programs: Marine Air Ground Task Force Training Command, 29 Palms, CA; Marine Aviation Weapons and Tactics Squadron-1 (MAWTS-1), Yuma, AZ; Marine Air Ground Task Force Staff Training Program, Quantico, VA; Mountain Warfare Training Center, Bridgeport, CA; and Marine Corps Tactics and Operations Group (MCTOG), 29 Palms, CA. The JNTC also provides several tools that support the incorporation of joint training into service Title X responsibilities. One of these tools is the Joint Training Enterprise Network (JTEN) that is the communications network for JNTC. The JTEN is a high-capacity, rapidly reconfigurable network that supports joint training exercises, experimentation, and the evaluation of new warfighting concepts. Additionally, it allows for inter- and intra-service forces to link simulation networks in order to train in a live, virtual and constructive environment that blends live tactical forces with manned simulators and sophisticated computer models.

Interagency Cooperation and Training. In order to increase realism and meet mission training standards at pre-deployment training programs, TECOM leverages the Department of Defense Interagency Request Process in identifying USMC Interagency participation requirements for our U.S. Government Agency partners. Additionally, through efforts with U.S. Agency for International Development, the Security Cooperation Education and Training Center, and MCTOG, deploying units have been trained in the use of the Tactical Conflict Assessment and Planning Framework that assists Commanders with identifying the root causes of instability in their location, and target efforts to address these problems. TECOM assists the State Department's Foreign Service Institute by instructing a Military Culture class during the monthly Iraq Provincial Reconstruction Team (PRT) Orientation and Afghanistan Familiarization Courses.

Multi-national Training. TECOM's intent is to build robust training relationships with multi-national partners through the development of an institutionally sound strategy to improve interoperability. One area focuses on Operational level interaction, primarily through coordination and reciprocal participation in Mission Rehearsal Exercises with partner nations which USMC units are frequently adjacent to during current operations. Additionally, institutional-level interoperability is being pursued through staff and instructor exchange programs in respective training organizations.

Pre-deployment Training Program (PTP)

To prepare Marines and the operating forces for the current fights and operating environments, The Training and Education Command (TECOM) developed an extensive PTP based on the Pre-Deployment Training Continuum. The PTP establishes a coherent progression of skill-level training, conducted by commanders, and evaluated at PTP Mission Rehearsal Exercises (MRX). Training is conducted in four nested "blocks" in ascending competency levels. Marine Expeditionary Force commanders determine what level of competency is required for each deploying unit based on mission essential task analysis, set unit priority for service level training events, and ensure units participating in service-level training events have appropriate support attachments during respective blocks of training. The PTP Continuum is comprised of:

Block 1: Block 1A and 1B training consist of Sustained Core Skills Training, Core Plus Skills Training, and Marine Corps Common Skills (MCCS) Sustainment Training. Core Plus Skills are those combat-focused skills that are environment, mission, rank or billet specific and are developed after a Marine is assigned to an operational unit. Block 1 training also includes formal schools training. Career progression training is critical to effective building block training and the intent is for all incoming leaders to have received the appropriate schooling prior to beginning the units' collective training. For aviation units, Block 1 provides resident instructor development, certification, and sustainment of qualifications/designations of individual aircrew and maintainers for annual training requirements.

Block 2: Block 2 training consists of Core Capabilities Training conducted within a unit. Core Capabilities are the essential collective functions a unit must be capable of performing during extended combat operations. For battalion-sized units, Block 2 is company-level and below training. For squadrons, Block 2 is Core Skills refinement and flight leadership development, normally single ship through division flight operations.

Block 3: Block 3 training is based on unit Mission Essential Tasks and consists of Advanced Core Capabilities (or Core Plus for Aviation) Training conducted by a unit and by the unit's higher headquarters. For battalion-sized units, Block 3 is battalion-level training. For Aviation units, Block 3 is squadron level integration with adjacent aviation and supported ground units utilizing formalized Command and Control functions to perform assigned METs to their required output standards.

Block 4: Block 4 training is battalion/squadron-level core competency training and is also known as the unit's Mission Rehearsal Exercise (MRX). Block 4 training is a unit's "graduation" predeployment training exercise and is individually-tailored to support and assess a unit's ability to perform tasks on its assigned mission METL(s). Battalion and higher deploying units will typically undergo a TECOM-supported MRX. Deploying units that do not participate in an MRX complete an Alternate Mission Rehearsal Exercise that is supported by the parent Marine Expeditionary Force. The MRX provides information for the MEF Commanding General's unit certification process.

ENHANCED MOJAVE VIPER

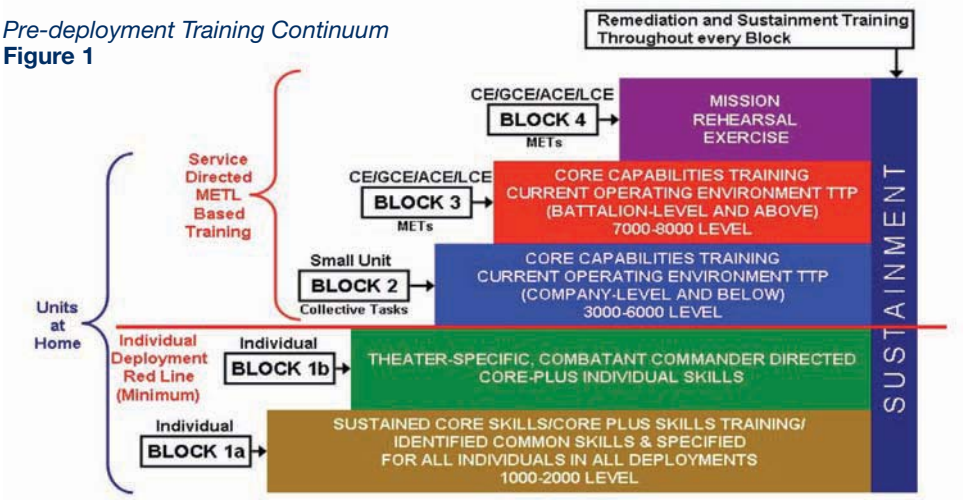
Conducted aboard the Marine Corps Air-Ground Combat Center (MCAGCC)

in 29 Palms, CA, Enhanced Mojave Viper is a 28-day full-spectrum exercise that focuses on providing a service-level assessment of battalions and squadrons in preparation for deployment. The exercise force composition consists of two infantry battalions, a combat logistics battalion, and three flying squadrons (fixed wing, rotary wing, and assault support). Throughout the 28-day exercise, units undergo full-spectrum training in offensive operations, defensive operations, Military Operations Other Than War and Counter Insurgency. Under various conditions to include desert, limited visibility, urban, rural, joint, and interagency, units are provided a live-fire, combined-arms training venue that closely resembles the conditions they will operate in once deployed.

EXERCISE MOUNTAIN WARRIOR

Mountain Warrior is the Block 3 Marine Air Ground Task Force Operations Course at the Mountain Warfare Training Center (MWTC), near Bridgeport, CA. Other local training areas are also used, including Hawthorne Army Depot at Hawthorne, NV; Naval Air Station Fallon, NV; and Lucky Boy Pass (off-road driving and counter-Improvised Explosive Device training). This course provides the opportunity for theater-specific pre-deployment training for USMC battalions and regimental staffs deploying to Afghanistan. The course consists of scalable, tailored training packages for units ranging in size from the company to battalion with a regimental headquarters. Currently, Marine ground combat forces deploying to Afghanistan conduct pre-deployment training during Exercise Mojave Viper, with training modified to be Afghanistan-specific. A variation of Exercise Mountain Warrior conducted at MWTC and MCAGCC will likely serve as the mission rehearsal exercise for USMC forces deploying to Afghanistan in the future.

Pre-deployment Training Continuum
Figure 1



Multi-Capable Training Ranges

Marine Corps combat readiness depends on the continued availability of Ranges and Training Areas (RTAs) that provide realistic, mission-oriented training in complex environments. The Marine Corps Training and Education Command (TECOM) has identified a comprehensive set of Corps-wide range requirements. These requirements are articulated in a Marine Corps Reference Publication, which defines the unconstrained range capabilities needed for accomplishing both urgent immediate and anticipated future training needs. In that regard, TECOM has established six cornerstone objectives for transforming RTAs:

1. Preserve and enhance the live-fire combined arms training capabilities of Marine Corps Air Ground Combat Center/Marine Air Ground Task Force Training Command, 29 Palms, CA and Marine Corps Air Station, Yuma Range Complex, AZ.
2. Recapture the Marine Air Ground Training Force (MAGTF) and unit training capabilities of the nation's two premier littoral training areas, Camp Lejeune, NC, and Camp Pendleton, CA.
3. Leverage technology to support every level of training with a goal of providing timely and objective feedback to the training audience.
4. Honor our commitments to protecting the environment, while preserving and enhancing our ability to conduct live-fire and maneuver training.
5. Ensure that our training complexes are available to, and capable of supporting, cross-Service training.
6. Support the emerging Joint National Training Capability with the common range infrastructure and systems architecture to ensure effective joint training.

The Corps has made significant investments in range instrumentation, targets, and simulation technologies to upgrade and modernize training. However, there remain areas of significant concern. Current range-complex configurations are not optimal for today's training requirements, and they will not be adequate for future weapons systems. Our current range complexes provide insufficient unconstrained maneuver space for Marine Air Ground Task Force training. Our range-planning initiatives aim at addressing these concerns to assure our ability to meet future training requirements. Specific issues include:

- Marine Expeditionary Brigade-level fire and maneuver training area
- East Coast aviation training range to accommodate the increased airspace and weapons requirements of precision-guided munitions and the F-35 Joint Strike Fighter
- Enhanced training opportunities for Marine units stationed in the Pacific

The Marine Corps has made considerable progress in the past seven years on cataloging, assessing, managing, and funding critical RTA complexes. There has been progress in identifying and quantifying the impacts of encroachment and incorporating those assessments into a comprehensive range management system. Important investments have been made to enhance range maintenance and modernization programs. In early 2010, all major Marine Corps installations are undergoing range modernization. The Mission-Capable Ranges initiative is supported by the acquisition program for Range Modernization/Transformation program.

Modeling and Simulation (M&S)

MAGTF Training Simulations Division (MTSD), a directorate of the TECOM, has established a training modeling and simulation community of interest to facilitate information exchange and address specific focus areas, such as infantry skills simulations, staff training environments, and simulation system Integration, Interoperability, Interconnectivity, Compatibility and networking. Participants in this forum are drawn from throughout the Marine Corps and industry. With this forum's input, MTSD is writing a training modeling and simulation strategy and master plan that will meet MAGTF training needs.

Small-unit training is receiving particular focus by TECOM to prepare Marines for contemporary and future operating environments. For squad-level training needs, TECOM is building upon the Infantry Immersion Trainer (IIT) facility developed by I Marine Expeditionary Force (MEF) to institutionalize this capability for the other MEFs. The IIT provides a key bridge to TECOM's future squad training initiative, the Squad Immersive Training Environment (SITE) program. SITE is envisioned as a multifaceted "toolkit" of integrated live, virtual, and constructive training capabilities that commanders can leverage to train their small units at all points along the training continuum. The SITE "toolkit" is predicted to include IIT, current virtual training systems appropriate for small units, and future capabilities that leverage emerging technologies. In support of the Enhanced Company Operations concept, MTSD is examining the networking of selected staff training, combined arms, combat convoy, combat vehicle, and aviation simulation systems to enable better training capabilities among critical MAGTF building blocks.

The U.S. Joint Forces Command recently approved and funded TECOM's request to integrate the Marine Corps' MAGTF Tactical Warfare Simulation system into its joint live, virtual, and constructive (JLVC) federation. This incorporation will provide higher simulation fidelity of MAGTF and amphibious operations in joint exercises and enable the Marine Corps to better leverage the many JLVC tools to support Service training and Combatant Commander regional engagement exercises. TECOM is pursuing appropriate linkages among existing Marine Corps simulations to provide more robust capabilities and examining simulations that address Political, Military, Economic, Social, Infrastructure, and Information issues.

Finally, TECOM is conducting an assessment of live, virtual, and constructive training environment capabilities. This analysis will identify gaps in the Marine Corps' ability to link different current capabilities and delineate integration standards for future capabilities. TECOM is examining networking requirements to link simulation systems with each other and with live domain capabilities, and as well as provide access to existing Marine Corps, joint, interagency, and multinational partner training and modeling simulation networks. Such a network would support distributed training venues between MAGTF elements, enable large-scale MAGTF exercises, and facilitate Marine Corps participation in joint, interagency, and multinational exercises.

COLLECTIVE TRAINING SYSTEMS
Combined Arms Command and Control Training Upgrade System (CACCTUS)

DESCRIPTION

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 level. CACCTUS is envisioned to provide a capability to tie into existing systems such as MAGTF Tactical Warfare Simulation.

OPERATIONAL IMPACT

Using the system components and simulation capabilities, two- and three-dimension visuals, interfaced Command, Control, Communication, Computers, and Intelligence (C4I), synthetic terrain, and an After Action Review, the concept of operations for the CACCTUS system is to immerse the trainees in a realistic, scenario-driven environment to enable commanders and their battle staffs to train or rehearse combined arms tactics, techniques and procedures and decision-making processes. In addition, CACCTUS will provide training across a live, virtual, and constructive training network through interoperability with appropriate C4I systems in a training environment.

PROGRAM STATUS

CACCTUS is fielded and providing Battalion Level training at MAGTF Training Center 29 Palms, CA, and II Marine Expeditionary Force (MEF) Camp LeJeune, NC, and will achieve Initial Operational Capability in November 2009. Current CAST facilities at III MEF Okinawa, Japan; I MEF Camp Pendleton, CA; and Kaneohe Bay, HI will be upgraded to CACCTUS and all five sites will be operating with CACCTUS Version 5.1 by May 2010.

Procurement Profile:	FY 2010	FY 2011
Quantity:	3	0

Developer/Manufacturer:
Cole Engineering Services Inc., Orlando, FL

Combat Vehicle Training System (CVTS)

DESCRIPTION

The CVTS for the M1A1 Main Battle Tank, Light Armored Vehicle (LAV) and Assault Amphibious Vehicle (AAV) provides gunnery and tactical training on these vehicles. 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).

OPERATIONAL IMPACT

The AGTS and AAV-TT provide the ability to train M1A1, LAV-25, and AAV crewmembers 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.

PROGRAM STATUS

The M1A1 systems (institutional/desktop/table top (FY 2010)) are fielded at the following active units: 29 Palms, CA (4/3/10) and Camp Lejeune, NC (4/3/10) and the following reserve units: Camp Pendleton, CA (3/1/5); Yakima, WA (1/0/1); Boise, ID (1/0/1); 29 Palms, CA (1/0/1); Ft Knox, KY (1/1/1); and Camp Lejeune, NC (1/0/1).

The LAV-25 systems (institutional/desktop/table top (FY2010)) are fielded at the following active units: Camp Pendleton, CA (6/2/11); Camp Lejeune, NC (4/1/8); 29 Palms, CA (4/0/8); and Okinawa, JP (1/1/0) and the following reserve units: Camp Pendleton, CA (0/0/1); Ft Detrick, MD (1/1/3); Riverton, UT (1/0/3); Camp Upshur, VA (1/1/1); Syracuse, NY (1/0/1); and Eastover, SC (1/1/3).

The AAV-TT systems (institutional/deployable (FY 2011)) are fielded at the following active units: Camp Lejeune, NC (3/3); Camp Pendleton, CA (5/5); 29 Palms, CA (1/1); Kaneohe Bay, HI (1/1); and Okinawa, JP (1/1), and the following reserve units: (Tampa, FL (1/1); Norfolk, VA (1/1); Gulfport, MS (1/1), Jacksonville, FL (1/1), and Galveston, TX (1/1).

Procurement Profile:	FY 2010	FY 2011
M1A1 Tabletops	31	0
M1A1-DAGTS	0	6
LAV Tabletops	39	0
LAV-DAGTS	0	17
AAVTT	0	0

Developer/Manufacturer:
Lockheed Martin, Orlando, FL.; TJ Inc., Orlando, FL; Naval Air Warfare Center Training Systems Division, Orlando, FL.

Marine Air Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)

DESCRIPTION

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 standalone tactical combat scenarios for air ground, surface, and amphibious operations.

OPERATIONAL IMPACT

With interfaces to fielded Marine Corps C4I systems such as Command and Control Personal Computer and Intelligence Operations Server, MTWS provides the battle staff the ability to seamlessly train with and use their Command, Control, Communications, Computers and Intelligence systems during the execution on an MTWS supported training event. Through the implementation of a High Level Architecture interface between MTWS and the entity-level Joint Conflict and Tactical Simulation (JCATS) system, high-resolution tactical objectives can be simulated in JCATS and reflected within the context of a larger operational scenario conducted in MTWS.

PROGRAM STATUS

In 2009, MTWS was selected by US Joint Forces Command to participate as a federate simulation in the Joint Live-Virtual-Constructive federation supporting the Joint National Training Capability. MTWS has been the combat simulation system used to support I Marine Expeditionary Force (MEF) and II MEF Mission Rehearsal Exercise (MRX) prior to Operation Iraqi Freedom deployment, MEF-level exercises at III MEF, Weapon and Tactics Instructor course in Yuma, 7th Marines Regimental MRX at the Marine Corps Tactics and Operations Group, Eastern Cross exercises at the Expeditionary Warfare School, coalition exercises with the Royal Thai Supreme Command, and numerous Battalion Command Post Exercises.

Procurement Profile:	FY 2010	FY 2011
Quantity:	0	0

Developer/Manufacturer:
L-3 Communications, Command & Control Systems and Software Division, Eatontown, NJ

Combat Convoy Simulator (CCS)

DESCRIPTION

The CCS is an immersive training environment for convoy operations that include basic procedures for driver, gunner, and passengers in tactical scenarios related to combat operations.

OPERATIONAL IMPACT

The simulator provides instruction in convoy operations including; resupply, patrol, logistics support, high-value target extraction, Medical Evacuation, 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. The CCS also provides training for both vehicle operators and individuals in vehicle and small arms weapon use, command and control, and Improvised Explosive Device attacks, response, and countermeasures. CCS provides guidance for Marines to respond to ambush attack and evolving enemy tactics in Military Operations on Urban Terrain settings.

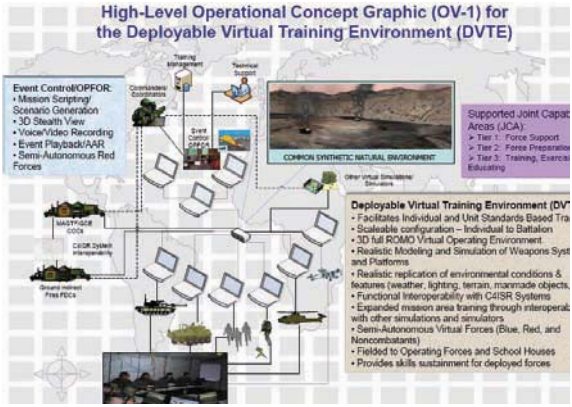
PROGRAM STATUS

The CCS is the third generation of convoy trainers procured through the full and open competitive acquisition process. In first quarter FY 2008, Lockheed Martin, Simulations Training & Support, Orlando, FL, was awarded the contract to manufacture up to nine Combat Convoy Simulators. As of October 2009, trainers had been fielded to Camp Pendleton, CA, Kaneohe Bay, HI, and Camp Lejeune, NC. The Naval Expeditionary Combat Command has purchased two trainers, the first of which has been fielded to Gulfport, MS; the second will be fielded by second quarter FY 2010 at Point Mugu, CA. Future Marine Corps fielding includes Mojave Viper, Marine Corps Air Ground Combat Center 29 Palms, CA, and Okinawa, Japan.

Procurement Profile:	FY 2010	FY 2011
Quantity:	2	0

Developer/Manufacturer:
Lockheed Martin, Simulations Training & Support, Orlando, FL

Deployable Virtual Training Environment (DVTE)



DESCRIPTION

The DVTE is a laptop personal computer based simulation system capable of emulating organic and supporting Infantry Battalion weapons systems and training scenarios to facilitate Training and Readiness manual 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 language and culture training, platoon and squad level tactics, employment of supporting arms, and various Recognition of Combatants packages.

The supporting arms component of DVTE is accomplished by the Combined Arms Network (CAN). The CAN version 1.3.1 is comprised of Assault Amphibious Vehicle, M1A1, Light Armored Vehicle, 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, 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), version 1.3, 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 is part of a Commander's "training toolkit" contributing to the building-block approach to standards-based training focusing on achieving improved levels of combat readiness.

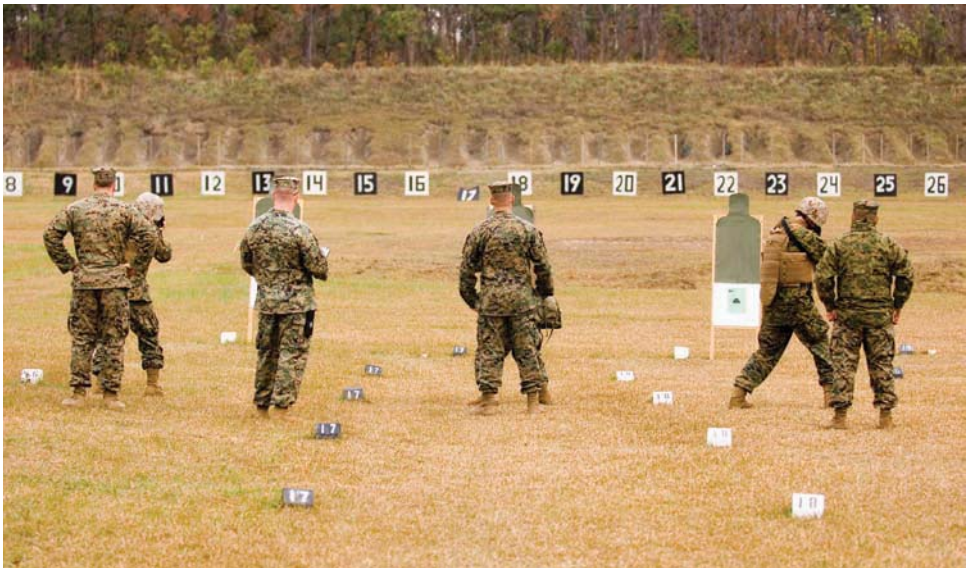
PROGRAM STATUS

One hundred and twelve DVTE suites have been fielded to the Battle Simulation Centers and active duty Marine units of I Marine Expeditionary Force (MEF), II MEF, and III MEF and to various schoolhouses, including the Basic School and School of Infantry. Fifty-two DVTE suites have been fielded to Marine Forces Reserve at training sites in 25 states. The fielding of the remaining suites to the active and reserve forces will be completed in FY 2010.

Procurement Profile:	FY 2010	FY 2011
Quantity:	100	0

Developer/Manufacturer:
Lockheed Martin, Burlington, MA; Alion Science and Technology, Norfolk, VA; AVT Simulation, Orlando, FL; Mobius Industries, Bellevue, WA; Bohemia Interactive, NSW Australia

RANGE TRAINING SYSTEMS
Range Modernization/Transformation (RM/T)



DESCRIPTION

The RM/T program modernizes major Marine Corps live training ranges with a dynamic training system capable of real-time and post-mission battle tracking, data collection and the deliverance of value-added After Action Review. Interface with installation Command and Control training centers (e.g., Battle Staff Training Facility, Combined Arms Staff Trainer, and Battle Staff Simulation Center) is paramount to producing multiple-scenario events that deliver relevant and realistic training. Integrating live and simulated training technologies, the fielded capabilities actively enhance live-fire, force-on-target, and force-on-force training through extensive after-action review with ground truth feedback (objective versus subjective), realistic representation of opposing forces, and enhanced range and exercise control capabilities.

OPERATIONAL IMPACT

RM/T links Marine Corps live training to the tenets of Training Transformation–Joint National Training Capability and Joint Assessment and Evaluation Capability. Instrumentation allows Service and joint virtual and constructive forces to interact with Marine Corps live training forces from distributed locations. Eventually expanded to incorporate coalition forces, Marine Air Ground Task Force live training in open and urban terrain is enhanced by providing capabilities to conduct realistic training. This will exercise all battlefield operating systems, and allow continuous assessment of performance, interoperability and identification of emerging requirements.

PROGRAM STATUS

Sponsored by the Range and Training Area Management Division, Training and

Education Command and managed by Program Manager Training Systems, Marine Corps Systems Command, RM/T is the capability end state guiding integrated design of live fire training programs of record that upgrade Marine Corps training capabilities in an incremental manner. Development and production efforts are under way for urban training environments, ground position location systems, instrumented tactical engagement simulation systems, opposing forces threat systems (including targets), and data collection systems in order to instrument the live training environment at multiple Marine Corps Bases and Stations during 2010. A parallel effort is enhancing the RM/T Data Collection System (Marine Corps-Instrumented Training System) to provide interface of Improvised Explosive Device and Joint Counter Radio-controlled Improvised Explosive Device Electronic Warfare System surrogate devices with live training audiences and to extend the R/MT Data Collection System functions from exercise design through playback and after-action review.

Combined Arms Military Operations in Urban Terrain (CAMOUT) Training System

DESCRIPTION

CAMOUT provides a realistic environment to support a variety of training tasks related to the deployment and maneuvers in an urban setting for the Marine Expeditionary Brigade (MEB) and its constituent elements. CAMOUT 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 to peacekeeping and law enforcement to direct combat. All these scenarios can be encountered in a complex urban setting within a relatively brief timeframe or small physical area, known as the "three block war."

PROGRAM STATUS

In early 2010, three CAMOUT urban districts are being employed, along with role players and atmospherics in support of enhancing Mojave Viper exercises.

Procurement Profile:	FY 2010	FY 2011
CAMOUT	3	0

Developer/Manufacturer:
Allied Containers System, Pleasant Hill, CA

Home Station Training Lanes (HSTL)

DESCRIPTION

HSTL 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

Like the capabilities within the Combined Arms Military Operations in Urban Terrain training system and the Home Station Military Operations in Urban Terrain Training System, HS Training Lanes incorporates "real world" conditions that focus on the terrain and the potential threat of IEDs.

PROGRAM STATUS

Currently the IED Training Lanes are being installed, one at Camp Pendleton, CA. and one at Marine Air Ground Task Force Training Center, 29 Palms, CA. Both facilities incorporate multiple lanes for both foot and vehicle traffic and have MOUT training facilities installed to simulate market places, villages, mosques and other structures found within the theater of operation. Both locations will be completed and operational this calendar year.

Procurement Profile:	FY 2010	FY 2011
Quantity:	3	0

Developer/Manufacturer:
Parsons Corporation, Pasadena, CA.

Infantry Immersive Trainer (IIT)

DESCRIPTION

IITs are small-unit training ranges consisting of urban structures finished and decorated to replicate geo-specific locations. Unique from first generation MOUT training facilities, individual feedback is enhanced by the ranges' integration and pairing with direct fire training systems, virtual simulation screens and windows, and video instrumentation for after action review to create a small unit training range on par with modern crew simulators. Integration of additional live training instrumentation systems, and live role players is accomplished by exercise design. The indoor and outdoor training environments highly replicate current operational theaters by stimulating all senses to stress small-unit actions and the small-unit leader's tactical, moral, and ethical decision making within the context of operational culture.

OPERATIONAL IMPACT

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

PROGRAM STATUS

This effort uses existing Marine Corps-wide procurement vehicles to provide Home Station MOUT non-live fire structures and Tactical Video Capture System After Action Review. Developed immersive effects initially fielded only to IITs will also be applies to Home Station MOUT training ranges when company and battalion training objectives warrant the training benefit derived.

Procurement Profile:	FY 2010	FY 2011
Quantity:	2	1

Developer/Manufacturer:
Parsons Corporation, Pasadena, CA; Global Security and Engineering Solutioins/L-3 Corporation, Chantilly, VA; others TBD

Ground-Position Location Information (G-PLI) Systems

DESCRIPTION

Integrated Global Positioning System (GPS) Radio System (IGRS). The IGRS is a developmental effort which supports the tracking of dismounted troops and vehicles in open terrain by augmenting Marines and vehicular Multiple Integrated Laser Engagement System (MILES) tactical engagement simulation systems with a GPS and Radio Frequency (RF) based tracking system. This system is specifically designed for use at Marine Air Ground Task Force Training Center 29 Palms, CA across the fixed range infrastructure.

Deployable Instrumented Training System (DITS). DITS supports the tracking of dismounted troops and vehicles in open terrain by instrumenting Marine Corps personnel and vehicles with a GPS and RF based (Ultra High Frequency) tracking system. This system is a Commercial Off the Shelf (COTS)-based product optimized for non-permanent infrastructure. DITS can track 1,200 participants simultaneously. This system can be used with room association devices to provide fully integrated indoor tracking. After Action Review (AAR) data is gathered on the fly and exported to a presentation program that can display time synched text, images, video, and audio. Unit commanders can request a take-home package that will play on any Windows-based computer system.

Instrumented Tactical Engagement System (I-TESS). I-TESS will be used to support direct force-on-force tactical engagement training. This system will consist of the following type components: Small Arms Transmitter (SAT), Man-worn Detection System (MDS), Command and Control (C2 - mobile & portable versions), and Military Operations in Urban Terrain (MOUT) Building Instrumentation, and Simulated Battlefield Weapons. The SAT will be used on the M4 and M16 type rifles and the M249 Squad Automatic Weapon. The MDS and range equipment will be used to instrument the individual Marine for direct force-on-force engagement adjudication and to include the ability to support instrumentation functions such as PLI reporting. The I-TESS system will be used in MOUT Facilities and Non-Live Fire Maneuver Ranges located at various Marine Corp bases and installations.

OPERATIONAL IMPACT

The Marine Corps requires 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. There is a need to collect the training actions/interactions of the Marines during the training exercise with the ability to provide immediate access of collected data for After Action Review purposes.

PROGRAM STATUS

G-PLI achieved Program of Record status as an Abbreviated Acquisition Program. 520 units of IGRS and 991 units of DITS have been de-

livered. I-TESS will be delivered as follows:

I-TESS – 2400 units will be delivered to Quantico, Camp Lejeune, Camp Pendleton, Hawaii, and 29 Palms

Procurement Profile:	FY 2010	FY 2011
Quantity:	1200	1200

Developer/Manufacturer:
SAAB Training USA, Orlando, FL
SRI International, Menlo Park, CA

Marine Corp Instrumentation Training System (MC-ITS)

DESCRIPTION

MC-ITS is an exercise control and after action review base-system capable of monitoring real-time live training and exercises for the purposes of instrumentation data collection, analysis, and review. MC-ITS will provide the capability to simultaneously support multiple training exercises. It will provide objective data collection and analysis of unit performance in force-on- force, force-on-target, Live Fire, and associated Command Post Exercises. The system will collate training feedback materials from varied training support and simulation systems to provide a comprehensive After Action Review (AAR) package for associated training elements. MC-ITS training capabilities will additionally enhance the procedures in the employment of Operational Counter Radio-controlled Improvised Explosive Device Electronic Warfare System devices by integrated training capabilities of the Counter Radio Electronic Warfare 2 and Marine Corps-Training Improvised Explosive Device training devices. This integration extends real-time visualization, Situational Awareness, and AAR for Counter-IED training.

OPERATIONAL IMPACT

MC-ITS will integrate live training with other simulation environments to provide the doctrinally correct battlespace and Marine Air Ground Task Force elements needed to provide tactical and operational realism for integrated training.

PROGRAM STATUS

1 company level set will be delivered to 29 Palms in FY 2010, 2 battalion level sets will be delivered to 29 Palms in FY11; with follow on to all locations where Tactical Video Capture System and I-Tactical Engagement Simulation Systems will be deployed. This system was developed by Unitech/Riptide.

Procurement Profile:	FY 2010	FY 2011
Quantity:	1	2

Developer/Manufacturer:
Lockheed Martin (Unitech) and Riptide, Orlando, FL

Tactical Video Capture System (TVCS)

DESCRIPTION

The TVCS provides video-based Real-Time Visualization, Situation Awareness, and After Action Review (AAR) capabilities. The TVCS will support these capabilities by using a video-stitching process that combines raw/captured video from multiple cameras into a single wide-panoramic view. The panoramic view is used in real-time to observe Marine's Urban Warfare tactics and for later use during group and individual AAR evaluation sessions. The TVCS AAR will also allow for insertion of text, graphics, 3D views, and audio.

OPERATIONAL IMPACT

TVCS synchronized video play back of urban maneuver allows identification of training friction points supporting after action reviews at various USMC Military Operations in Urban Terrain training venues.

PROGRAM STATUS

This system is presently seeking Program of Record status as Acquisition Category IV (M). Installation completion at MCB Camp Pendleton is expected in FY 2010. Additionally, in first quarter FY 2009, the Joint Improvised Explosive Device Defeat Organization (JIEDDO) in collaboration with the Marine Corps and The U.S. Navy Expeditionary Combat Command identified the need to support JIEDDO's mission to identify and defeat the device requirement. To support this critical training, JIEDDO funded and sponsored procurement of eight TVCS for Home Station Training Lanes at three Marine Corps and five Navy sites.

Procurement Profile:	FY 2010	FY 2011
Quantity:	8	8

Developer/Manufacturer:
Global Security and Engineering Solutioins/L-3 Corporation, Chantilly, VA

CULTURE & LANGUAGE TRAINING SYSTEMS
Operational Language & Culture Training System (OLCTS)

DESCRIPTION

OLCTS provides interactive language and culture training packages designed to shrink training time by using computer-based interactive training and a common architecture that allow sharing of content across multiple training delivery platforms. This pedagogical framework supports continuous learning by the Marine throughout the 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 implemented on top of a commercial gaming engine using Situated Culture Methodology and artificial intelligence technology.

OPERATIONAL IMPACT

OLCTS provides a repository and common framework for shared language and culture training packages relevant to Marine Corps operations world wide. OLCTS will provide initial acquisition and sustainment language and culture training that enable Marines to become culturally and linguistically adept to perform any mission, anywhere, and anytime.

PROGRAM STATUS

Products are currently available are: Iraqi; Pashto; Dari; Sahel French.

Procurement Profile:	FY 2010	FY 2011
	2	2

Developer/Manufacturer:
Alelo, Tactical Language Training,
Los Angeles, CA

Virtual Cultural Awareness Trainer (VCAT)

DESCRIPTION

The VCAT, sponsored by the US Joint Forces Command, is a Sharable Content Object Reference Model compliant web-based cultural awareness training game integrated with the Atlas Pro learning management system and delivered via Joint Knowledge Online. VCAT provides immersive training for joint warriors deploying to the Horn of Africa for multiple mission sets, and multiple scenarios using Situated Culture Methodology. This methodology focuses on situated culture, consistent with the five dimensions of "operational culture" used by the Center for Advanced Operational Culture Learning.

OPERATIONAL IMPACT

The VCAT prototype provides cultural awareness training for individual augmenters prior to their deployment to the Horn of Africa area of responsibility. The mission areas include civil affairs, security cooperation and humanitarian relief missions for both junior and senior leaders. VCAT will provide cultural awareness training that enables Marines to become culturally adept to perform any mission, anywhere and anytime.

PROGRAM STATUS

Horn of Africa is currently available via the Joint Knowledge Development and Distribution Capability at: http://jko.jfcom.mil/ and will be available in the future via MarineNet.

Procurement Profile:	FY 2010	FY 2011
	1	1

Developer/Manufacturer:
Alelo, Tactical Language Training, LLC,
Los Angeles, CA

Cognitive Skills Training for Asymmetric Warfare

DESCRIPTION

APM C&LT is conducting Research and Development to develop, deliver, and evaluate training technologies for enhancing the individual Marine's cognitive skills for Improvised Explosive Device defeat (IED-D). APM C&LT recognizes the role of language and culture in detecting indicators of threat. The Program Manager Training Systems Command (PM TRASYS) Cognitive Skills for Asymmetric Warfare program is moving beyond basic declarative knowledge and procedural training to develop and evaluate training based on a cognitive approach that includes a cultural framework to improve the decisions and judgments required for successful IED-D. The goal is to develop a single cognitive training and assessment curriculum for mounted and dismounted patrols at the platoon echelon level and below.

OPERATIONAL IMPACT

The products developed for use in pre-deployment home station training will better prepare Marines to conduct more productive live training exercises at Mojave Viper. Training is designed to accelerate the basics of tactical expertise for our most junior warriors in areas such as understanding the enemy's motivations and capabilities, understanding the terrain as it applies to IED-D, understanding timing, knowing one's own capabilities, and understanding the human terrain thorough the lens of IED-D.

PROGRAM STATUS

The following products are currently available:

- "Insurgent Mindset Training" is a Virtual Battle Space 2-based training module that enables the warfighter to take the perspective of insurgents by emplacing IEDs to attack convoys, and also to play Marines tasked with predicting, detecting, and avoiding IEDs during a patrol. The Insurgent Mindset Training prototype will be included in a future VBS2 release.
- The Scenario-based Performance Assessment System for Learning in Team Environments (SPOTLITE) tool was developed for the USMC Engineer Center of Excellence for use at live training ranges to allow observers to measure and assess team and individual performance in real-time during simulated training exercises. Developed for use on a handheld tablet personal computer, SPOTLITE allows evaluators to more reliably and completely collect real-time data during simulated and live training exercises and then upload the data to a trending tool that permits analysis of data and trends over time.

Developer/Manufacturer:

Insurgent Mindset Training and the Cognitively-Enhanced VBS2 TSP: Cognitive Training Solutions, Avon, OH.

Cognitive Skills Assessment for Asymmetric Warfare: Cognitive Performance Group, Orlando, FL.

Spotlite and Trending Tool: Aptima, Inc., Woburn, MA.

Language Learning Resource Centers (LLRCs)

DESCRIPTION

Overseas Contingency Operations, 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. Foreign language instruction has become a critical part of the Pre-deployment Training Program 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. Instead the LLRCs provide a cost effective platform for home station language and culture training. The LLRCs are state of the art classrooms specifically designed and equipped with the capability to provide language learning up to Defense Language Institute Interagency Language Roundtable Level 1+. 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.

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.

PROGRAM STATUS

LLRCs are currently operational at: MCB Okinawa; MCB Kaneohe Bay, Ft Story, VA; MCAS Cherry Point, NC, Camp Delmar, CA; Camp Pendleton, CA; Camp Lejeune, NC. The LLRCs are operated by the Center for Advanced Operational Culture Learning

Procurement Profile:	FY 2010	FY 2011
	2	1

Developer/Manufacturer:
Trofholz Technologies, Inc., Rocklin, CA

INDIVIDUAL TRAINING SYSTEMS
High Mobility Multipurpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT)

DESCRIPTION

HEAT training is one of the final steps in an overall Vehicle Safety Training program and is a mandated requirement for all Marines prior to deployment in theater. The HEAT trainer simulates the conditions of a vehicle roll over and provides each member of the HMMWV crew "rehearsal" of how to respond with immediate action. The total vehicle-training program incorporates academic training in risk management, drivers training, rules of the road for the particular country or theater of operations, and hands-on training with specific equipment in which the crew will operate.

OPERATIONAL IMPACT

The Commandant of the Marine Corps has directed the procurement of the HEAT for both Continental United States and overseas training in order to provide simulation training for Marines and Sailors on the procedures to egress a vehicle after roll-over, how to recognize the vehicle conditions indicative of a pending roll-over, and to reinforce the importance of properly wearing the safety restraint. Through repetitive training in a HEAT simulator, the US Army has estimated that soldiers have increased their chances of survivability from a roll-over situation by 250 percent, developed better skills in avoiding dynamic vehicle rollovers and reduced their emergency reaction egress time from 60 seconds to out of the vehicle and ready to engage the enemy in six seconds. The HEAT system training is a mandated requirement for all Marines prior to deployment to Operations Iraqi Freedom and Enduring Freedom. In September 2007, US Marine Forces Central Command mandated roll-over training as pre-deployment requirement, which was documented in HEAT Marine Corps Combat Development Command Statement of Need December 2007.

PROGRAM STATUS

HEAT was accepted in POM 10 but not funded until FY 2012. As of FY 2010, 13 have been fielded Camp Pendleton, CA; Camp Lejeune, NC; 29 Palms, CA; Camp Hansen, JPN; Kaneohe Bay, HI; New River, NC; Cherry Point, NC; Beaufort, SC; Yuma, AZ; and Miramar, CA; with another five are to be fielded in FY 2010 to include fielding are Iwakuni, Japan, and Quantico, VA. Additionally, Joint Improvised Explosive Device Defeat Organization is funding a new start program for delivery of five HEATs to the Naval Expeditionary Combat Command.

Procurement Profile:	FY 2010	FY 2011
	5	0

Developer/Manufacturer:
MCA Albany, GA

Mine Resistant Ambush Protected (MRAP) Egress Trainer (MET)

The MET is designed to train Marines how to properly egress from a CAT I, CAT II and CAT III MRAP vehicle. Like the High Mobility Multipurpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT), it provides Marines the opportunity to experience vehicle roll-over within a controlled environment, with the inside of the cab conditions literally and virtually the same as in real-life conditions. This proactive responsive type training also allows the Marine the rehearsal and physical executable natural response conditioning that is necessary in a roll-over. Given the right controlled training environment, this training affords the Marine with the practical experience needed to conduct proper egress procedures. This type of training, like the HEAT, reinforces the proper seatbelt/harness restraints use, and helps develop the muscle-memory responsive situational awareness skills of individual and crew alike that would be reactionary and proactive under any circumstance while in transit in any MRAP vehicle.

The MRAP is a larger vehicle with more personnel inside, which could result in more confusion and chaos during a rollover. Due to the higher center of gravity that is presented by this type of vehicle, the MRAP presents a higher probability of rolling over. The increased usage of the MRAPs in both Operations Iraqi Freedom and Enduring Freedom caused the Joint Program Office to determine that it would also create an egress trainer similar to the HEAT to address the issues with egression from a rolled mishap. MET is designed to put Marines in a rollover environment and teach them teamwork and effective communication skills within that environment, so that they will properly egress a MRAP. The MET seats up to 10 personnel, which is substantially more than the HEAT. The MET has a functional gunner's position, and within the MET, the gunner is trained on the proper use of the harness and the actions they must perform prior, during, and after a rollover event.

Indoor Simulated Marksmanship Trainer (ISMT)

DESCRIPTION

The ISMT - Enhanced (ISMT-E) 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 simulated AT4, M2 (.50 cal), M9, M16A4, M16A2 Fully Sensored, M240G, M203, MK19, MP5, Squad Automatic Weapon, M870 12 gauge shotgun, Shoulder-launched Multi-purpose Assault Weapon, M224 60mm Mortar, M252 81mm Mortar, M4A1, SRAW (Predator), and Joint Services Combat Shotgun. The ISMT-E has five firing positions. The Infantry Squad Trainer-Enhanced (IST-E) consists of three ISMT-E 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-E/IST-Es also provide Forward Observer Spotting/Control of indirect fire and night vision training capabilities in addition to the baseline features. The ISMT-E/IST-E systems are used both within the continental United States and outside CONUS.

OPERATIONAL IMPACT

The ISMT is used for remedial, virtual, instruction in basic and advanced marksmanship, shoot/no-shoot judgment, combat marksmanship, and weapons employment tactics. This program is required to continue to allow simulated training in myriad scenarios both at home station, during pre-deployment training, and while on deployment.

PROGRAM STATUS

Originated by a 1998 Operational Requirements Document, ISMT is a fielded Acquisition Category IV Program. There are currently 627 current systems fielded to active duty bases and stations, I, II, and III Marine Expeditionary Forces, USMC Reserve facilities, and aboard Naval Expeditionary ships. Systems are currently being catalogued for improved management of operation and sustainment.

Procurement Profile:	FY 2010	FY 2011
Quantity:	30	0

Developer/Manufacturer:
MEGGITT Defense Systems Inc, Irvine, CA
Tatitlek Inc, Anchorage, AK
Skylla, Inc, Dumfries, VA

Supporting Arms Virtual Trainers (SAVT)

DESCRIPTION

The SAVT will advance the training capability, operational readiness, and tactical proficiency of USMC Joint Terminal Attack Controllers (JTACs), Forward Observers, and Forward Air Controllers. These personnel will use training scenarios that require the placement of tactical ordnance on selected targets using Joint Close Air Support procedures and observed fire procedures for Naval Surface Fire Support, artillery and mortar fire to perform destruction, neutralization, suppression, illumination/coordinated illumination, interdiction, and harassment-fire missions.

OPERATIONAL IMPACT

With recent Marine Corps doctrine changes, Joint JTAC memorandum agreement and certification by Joint forces Command of the Navy's Multi-purpose Supporting Arms Trainer/SAVT simulation events can replace 33 percent of the Marine Corps' live fire Training and Readiness and Joint Service currency training requirements.

PROGRAM STATUS

The SAVT Mission Needs Statement was approved in 1998, with the Universal Urgent Needs Statement dated December 2006. There are currently six systems fielded to active duty bases and stations, I, II, and III Marine Expeditionary Force. The following enhancements to SAVT are planned enhancements after initial fielding:

- Strike Link
- Video Scout
- PLDR
- Multiple Launch Rocket System
- Laser Modeling

Procurement Profile:	FY 2010	FY 2011
Quantity:	6	0

Developer/Manufacturer:
TJ Inc., Christmas, FL

Marine Corps Martial Arts Program (MCMAP)

The Marine Corps' martial culture has wrought and distinguished the service since its birth in 1775. It is a culture founded on the close combat of ships of sail and defeating the Barbary Pirates during the late 18th Century…storming the bois de Belleau during the Great War… holding "Bloody Ridge" on Guadalcanal during World War II…and, most recently, intense, close-quarter combat in the Iraq and Afghanistan campaigns. In order to prepare Marines for the conflicts yet to come, General James L. Jones, the 32nd Commandant of the Marine Corps, envisioned a program that would provide Marines the tools to conduct hand-to-hand combat and to realize the potential of every Marine as a warrior. The Marine Corps Martial Arts Program is the product of that vision.

MCMAP is based on five, colored-belt levels with six different degrees of Black Belt. Each belt level is broken down into three disciplines, each of which a Marine must become proficient in before attaining the next belt level. The mental, character, and physical disciplines of the warrior are the foundation of the Martial Arts Program. The mental discipline consists of warrior studies, martial culture studies, combative behavior studies, and other professional military education. The character discipline is built around the Marine Corps' core values of Honor, Courage, and Commitment. The character discipline underscores the role of the warrior on and off the battlefield…24 hours a day…seven days a week. The physical discipline consists of the 184 techniques taught throughout the five belt levels.

Marine Corps Distance Learning (MCDL)

DESCRIPTION

MCDL, also known as "MarineNet," is the Marine Corps' learning management system and infrastructure that enables Marines to receive training and education via the appropriate interactive media, when and where the learning is needed. Managed by the College of Continuing Education (CCE), MCDL provides the operational forces access to the distance learning resources and performance support tools that increases the effectiveness of training and education through use of technology. MarineNet courseware facilitates career progression and expedites the training process by granting rapid online course enrollments and online test completion. Test scores are available immediately and students are able to print courseware completion certificates online. Student activity is electronically entered into the Marine Corps Total Force System via the Marine Corps Training Information Management System database providing promotion points, self education bonus points and Reserve retirement credits. To meet the access requirements of the operational forces, CCE has fielded various distance learning suites to the major Marine Corps bases and stations. The key infrastructure components of MCDL are as follows:

- Content Delivery Engines (Network Appliances that host content)
- Centralized Learning Management System for Student Administration
- Learning Resource Centers (LRC)
- Video Teletraining Training Centers
- Deployable Learning Resource Centers (DLRC)

Available electronic courseware products include:

- Required Pre-Deployment Training
- Required Annual Training
- Military Occupational Specialty and Common Skills Training
- Cultural and Language Courses
- Professional Military Education Courses
- Business Skills and Information Technology Courses
- Online Reference Material and Job Aids
- Online Testing

OPERATIONAL IMPACT

The Marine Corps Distance Learning Program contributes to the Marine Corps' operational readiness by providing all Marines with access to required pre-deployment training, military occupational specialty common skills training opportunities, and Professional Military Education. Distance learning 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 attending formal training. Distance learning gives the commander a better-trained Marine while increasing personnel availability to accomplish the unit's mission.

PROGRAM STATUS

Throughout the Marine Corps, 42 LRCs have been fielded and are currently operational and 54 DLRCs are fielded and available for units to check out.

The Marine Corps University (MCU) and Professional Military Education (PME)

The MCU, also known as Education Command, oversees a progressive series of schools that Marines attend throughout their careers, regardless of military occupations. Incorporating pedagogical approaches common to any higher education institution, the combined doctoral-level and military faculty strives to foster critical thinking and decision making skills through a balance of directed readings and writings, guest lectures, historical case studies, small-group discussions, military planning exercises, and shared experiences. MCU is accredited by the Commission of Colleges of the Southern Association of Colleges and Schools.

MCU is the PME advocate for the Marine Corps and is charged with developing, implementing and monitoring PME policies/programs and educating the force. The progressive PME learning system is designed to educate Marines by-grade throughout their careers. PME programs consist of resident and nonresident instruction, professional self-study, and professional reading program. Resident programs present a unique learning opportunity in that they allow sister service, interagency, and foreign service students to participate in the education and exchange of ideas with Marine students. Nonresident programs are also critical to the education of the force, as a majority of the population must pursue education via distance education rather than resident instruction.

The main campus of MCU is located at Quantico, VA, and consists of the following officer PME schools and colleges: the Expeditionary Warfare School for captains, the Command and Staff College for majors, the School of Advanced Warfighting, (second year majors), and the Marine Corps War College, lieutenant colonels. Enlisted resident education is conducted at the Quantico Staff Noncommissioned Officer Academy and five satellite academies worldwide.

The curricula of both the resident and nonresident education programs will continue to address Marine Air Ground Task Force proficiency in the core warfighting functions of combined arms, amphibious operations, and maritime pre-positioning operations, in addition to developing and expanding the Corps' irregular warfare/counterinsurgency capabilities. The University intends to promote and develop the Marine Corps War College into a robust institution by expanding the student population to more fully support the Corp's requirements. The enlisted PME programs are being revised to ensure resident and nonresident

programs are coordinated, relevant, and meet the needs of the operating forces. The Center for Middle East Studies will grow into a Center for Strategic Studies focused on multiple regional areas of significance to the Marine Corps and the nation. The Center will expand its capacity to research and publish on issues associated with strategic assessments, regional security, diplomacy, alliance relations, technological and military developments, and U.S. foreign policy. A major component of the Center will be outreach to other PME institutions, civilian academic programs, and research institutes.

MCU leadership is exploring a concept of establishing regional campuses in order to give the university the capacity to expand and engage the student population in a meaningful and global way. The intent is to provide outreach and resources to the significant percentage of MCU students completing their PME from a distance by providing: comprehensive and immediate access to MCU research and academic resources; central access for students and faculty to assemble and participate in a learning environment; decentralized delivery of MCU-developed courses that ensures common content and uniformity; and use of technologies that link home campus with regional campuses and individual students. Regional campuses will permit a global MCU presence and central management of resources. Through its combined emphasis on courses, symposia, and publications, MCU will continue to develop Marines, sister service members, interagency personnel, and multinational partners.

PART 9:

SUPPORTING ESTABLISHMENT

INTRODUCTION

The Supporting Establishment — Marine Corps Installations, Recruiting Activities, Reserve Support Activities, and Special Supporting Activities — provides the foundation and framework for Marine Corps' readiness in the 21st Century. The programs discussed in this section are vitally important to the Marine Corps and the Nation. They are fundamental to the combat readiness of Marine Corps operating forces and are integral to the support of individual Marines, Sailors, and their families.

Manpower Recruiting

FY 2009 was a very productive year for the Marines of the Marine Corps Recruiting Command (MCRC) as they contributed to the Marine Corps achieving an end-strength of 202,000. This was accomplished without reducing the high quality standards expected and required to grow the force. Achieving this mission with the continued challenges of recruiting during wartime persisted, testing the ability and professionalism of our recruiting force. MCRC once again far surpassed its mission requirements, exceeding all quality benchmarks as it accomplished this milestone achievement.

Recruiting remains the lifeblood of our Corps. The ability of MCRC to not only meet, but exceed the quality standards set forth by the Commandant of the Marine Corps serves as a testament to the professionalism and dedication of the recruiting force. It is the individual Marine recruiter who, tasked with ensuring that all applicants meet the nation's expectations of its Marines, serves as the gatekeeper to our Corps. Thanks to their efforts the Corps has not wavered in accessing only the most highly qualified applicants. In addition to recruiting the Nation's best and brightest to become Marines, the individual recruiter continues to serve as an ambassador in local communities and to the American public. Recruiters put a familiar face to the nationally recognized reputation of the Marine Corps and stand as examples of all that is best about the nation and her Corps. The individual recruiter serves as the singular most influential factor inspiring applicants to take up the challenge of serving as a United States Marine, who once transformed, will be a Marine for life.

Selection to recruiting duty is a unique and highly discerning process. Over the last fiscal year this process has become even more rigorous. Those considered for assignment as recruiters must first undergo extensive screening at their home station and are continuously evaluated for their suitability during their time at Recruiters School. They are representative of the best NCO's and SNCO's the Marine Corps has to offer. Intensive training at Recruiters School ensures that recruiters are thoroughly prepared to face the multi-faceted challenges that lay ahead. Their training is continuously reinforced and built upon throughout their

recruiting tour, ensuring that the recruiter remains armed with the most current, and effective, tools to facilitate success.

Even before a prospective applicant meets with a recruiter in person it is likely that he or she will have been exposed to the Marine Corps' message of making Marines, winning the nation's battles and developing quality citizens. This is not by accident; it is accomplished through comprehensive and intensely focused marketing and advertising programs. These programs serve to reinforce the elite warrior image and positive message that is communicated daily by the individual recruiter and is supported by his collateral materials. To effectively maintain this message, marketing and advertising programs continue to emphasize core competencies of building brand awareness, generating quality leads for recruiters and developing recruiter support material for use in the recruiting process. High-quality advertising efforts properly focused on the target markets of prospective recruits and their influencers creates and maintains awareness of Marine Corps opportunities among America's young men and women and those who influence their decisions.

Paid advertising continues to be the most effective means to communicate the Marine Corps' message and, as a result, remains the focus of advertising efforts. As advertising costs continue to increase it is imperative that the advertising budget remains competitive in order to ensure that the recruiting message reaches the right audience. This is especially true as the Marine Corps moves forward into FY 2010 and beyond, as the strength of the recruiting force is reduced and Marines are returned to the operating forces. Marine Corps recruiting successes during the past several years are a direct reflection of the superior efforts of a quality recruiting force and the supporting arms of effective marketing and advertising programs.

MCRC achieved unprecedented success in FY 2009 by making 101.0 percent of its enlisted shipping objectives to include exceeding all Department of Defense (DoD) and Marine Corps quality standards. For example, 98.5 percent of those shipped to recruit training were Tier 1 high school graduates, above the DoD and Marine Corps standards of 90 and 95 percent, respectively. Additionally, 69.7 percent were in the I-IIIA upper mental group — again, well above the DoD and Marine Corps standards of 60 percent and 63 percent, respectively. The Marine Corps Reserve achieved 107.7 percent of its recruiting goals with the accession of 5,701 Non-Prior Service Marines. Of these, 98.3 percent were Tier I high school graduates and 73.5 percent were in the I-IIIA mental groups. In addition, MCRC accessed 3,862 Prior Service Marines into the Marine Corps Reserves, achieving 100 percent of the objective.

Success was also achieved in the officer mission by obtaining at least 100 percent in all categories of air, ground, and law. Increases from commissioning sources like the U.S. Naval Academy (USNA) and Naval Reserve Officer Training Corps (NROTC) are currently con-

tributing an appropriate percent to meet the overall annual officer requirement. In doing so, Officer Selection Teams are now able to focus on the college campus market for contracting future officers through the Platoon Leaders Class (PLC) Program. This will ensure that the quality of the Officer Corps is maintained well into the future.

In all recruiting efforts, diversity, in both the enlisted and officer ranks, remains an important priority for MCRC. Increased awareness in underrepresented markets will remain a key aspect of the marketing and advertising campaigns. This will be augmented by enhanced outreach efforts, as MCRC strives to have a physical presence at key events interacting with prospective applicants and their influencers. This increased focus on diversity will continue until the Marine Corps mirrors the face of the nation it serves.

The superior results achieved by MCRC during FY 2009 ensured that the command continued its legacy of success. MCRC recognizes that during FY 2010 there will be new challenges, some expected, other which will be unexpected. While FY 2009 was a year marked by great success, and MCRC is well-positioned for continued success in FY 2010, there is no time to rest on the laurels of previous accomplishments. MCRC will move into the next fiscal year with a level of intensity that has led to its past successes and which ensures success in the future. As long as Marines recruit Marines, mission accomplishment can never be in doubt.

Marine Corps Recruiting Information Support System–Recruiting Station (MCRISS-RS)

DESCRIPTION

The deployment of MCRISS-RS streamlines the entire enlistment process and provides immediate benefits in man-hour savings by eliminating redundant data entry and improving the quality of information available. Moreover, the system directly interfaces with and supports key information technology initiatives of the U.S. Military Entrance Processing Command by electronically scheduling applicants for processing and receiving electronic processing results. MCRISS-RS interfaces with the Joint Personnel Adjudication System at the Office of Personnel Management to ensure security background checks are fully completed on each applicant. MCRISS-RS harnesses state-of-the-art technology and provides the Marine Corps Recruiting Command with a solid foundation from which to grow future manpower information systems, such as MCRISS-Recruiting Sub-Station (RSS) and MCRISS-Officer Selection System (OSS).

The development and deployment of MCRISS-RSS/OSS promises to automate both the officer and enlisted side of recruiting at the recruiter/officer selection officer (OSO) level through a proven framework of systematic recruiting. Systematic recruiting establishes procedures for standardization, management/planning, training, and action by focusing the OSO, RSS Staff Non-Commissioned Officer In Charge, and recruiter on those activities and programs vital to effective recruiting. MCRISS-RSS will encompass all 11 components of enlisted systematic recruiting while MCRISS-OSS will encompass the 14 components of officer systematic recruiting. This effort will further eliminate redundant data entry and save an extremely valuable resource: time.

OPERATIONAL IMPACT

Time is the recruiter's greatest challenge and most precious asset. A recruiter's achievement and success are measured only by the number of qualified, quality individuals interviewed, contracted, and shipped to recruit training or Officer Candidate School. MCRISS-RSS/OSS, coupled with solid skills, will systematically organize the recruiter's day, week, and month. With this added organization, the recruiter will be armed to conduct prospecting in a more efficient manner, saving time and ensuring consistency in the execution of prospecting plans.

PROGRAM STATUS

Procurement Profile: FY 2010 efforts will deploy MCRISS-OSS (the first increment of six MCRISS-RSS components), new automated enlisted applicant package, new Automated Commissioning Package, and develop the second increment of RSS.

Developer/Manufacturer:
Stanley Associates, Arlington, VA

Subcontracts: Segue Technologies, Arlington, VA; Tedrad Digital Integrity, Washington, D.C.; and Firefly Database Solutions Inc., Nokesville, VA

Marine Corps Retention

ENLISTED PERSONNEL

Enlisted retention achievements contribute to the Marine Corps' success in reaching key end strength milestones and ensure the proper grade shape and experience to the enlisted career force. The Marine Corps continues to retain both first- and subsequent-term enlisted Marines at unprecedented levels in order to shape the Non-Commissioned Officer and Staff Non-Commissioned Officer leadership required by the 202,000 end strength. The Corps' retention efforts match the required skills and grades necessary for a 1:2 deployment-to-dwell time ratio. Retention goals increased in FY 2008 to support the growth and proper shaping of our current and future career force. In FY 2009, the Marine Corps achieved 15,949 reenlistments among eligible first-term and subsequent-term populations. The Marine Corps reached these retention goals earlier in the fiscal year than at any other time in the program's history. The 8,012 first-term reenlistments achieved in FY 2009 were the second-highest number ever achieved. The Marine Corps reenlisted 33.7 percent of the eligible first-term population, compared to an average of 24 percent in a traditional fiscal year. Similarly, we reenlisted 78.2 percent of the eligible career force, compared to 60 percent in a traditional fiscal year.

Retention goals will remain aggressive as the Marine Corps continues to shape the enlisted career force. The Selective Reenlistment Bonus Program (SRBP) clearly aided reenlistment endeavors and improved retention for some critical skill shortages. The creation of new operational units has led to shortages in many occupational specialties that span the Marine Air Ground Task Force, such as intelligence, explosive ordnance disposal, reconnaissance, and artillery, thereby justifying SRBP funding levels.

Although the SRBP greatly assists with this retention success, intangible attributes such as pride of service and the satisfaction of leadership remain significant influences on retention. All leaders within the officer and enlisted ranks must ensure Marines are educated on the importance of retention and on evolving retention policies and incentives. Leaders must emphasize the intangibles of service to aid quality Marines in their individual reenlistment decisions.

Marine Corps retention efforts are enhanced by the 404 career retention specialists that specialize in and assist commanders in the retention of Marines. Also supporting retention efforts is the Enlisted Career Counseling and Performance Evaluation Unit resident in the Enlisted Assignments Branch at Headquarters Marine Corps. The six Marines in this unit provide career guidance to enlisted

career Marines, performance evaluations on retention and retirement requests, and informational briefs to commands throughout the Marine Corps. The unit also provides formal instruction on promotion and career progression to all academies, the Sergeants Course, Career Course and Advanced Course, as well as the Infantry Unit Leaders Course. It conducts command visits on U.S. east and west coasts and the throughout the Far East, reaching more than 150,000 personnel per year.

OFFICERS

The Marine Corps officer retention goal is to retain the best and most fully qualified officers in the right grades and with the right skills to provide the capabilities required in the operating forces. Historically, the aggregate officer retention rate is 90.5 percent. For FY 2009, the Marine Corps achieved a retention rate of 92.5 percent. Regardless of that success, the Marine Corps continues to look for indicators of higher attrition in future years.

Although overall officer retention is excellent, shortages do exist in certain grades and skills, requiring careful management and innovative solutions. To this end, the Marine Corps has active programs in place, both monetary and non-monetary, to ensure officer retention remains high. Monetary tools already implemented include Aviation Continuation Pay and Law School Education Debt Subsidy. Non-monetary programs include voluntary lateral moves, interservice transfers to the Marine Corps, and Return to Active Duty. All of these programs provide incentives to officers for continued service while retaining Marine Corps flexibility to meet requirements across the Marine Corps Total Force.

Civilian Marines

Civilian Marines are valuable assets to the Total Force team. Marines at all ranks recognize, more than ever before, the importance of Civilian Marines who provide critical support in numerous areas throughout the Corps. Civilian Marines total approximately 35,000, with an expected growth of another 5,000 during the next five years. Serving primarily as a major element of the supporting establishment, Civilian Marines are now being called upon to serve in positions traditionally occupied by military personnel and deploy along with operational forces. The Marine Corps is focused on ensuring the Nation has a Civilian Marine workforce equipped with the leadership skills and technical competencies necessary to meet the challenges of today as well as in the future. Flexibilities in how we manage Civilian Marines also play a key role in helping the Marine Corps meet its mission.

Civilian Workforce Development: The Marine Corps is committed to improving the leadership skills and opportunities for training and education of Civilian Marines. Civilian Marines are afforded the opportunity to advance their career development through centrally managed programs. There are numerous programs, courses, and seminars available. Opportunities exist for both new/entry-level and senior/expert-level employees. The Civilian Workforce Development Application (CWDA) was designed to assist the Marine Corps in managing civilian workforce development activities. CWDA is a web application that contains data related to the leadership and functional core competencies of the Communities of Interest (COI). The long-term vision for CWDA is that it will facilitate organizational management and workforce shaping.

Community Management: COIs provide enterprise-wide communications, collect and share best practices, focus on technical aspects and training needs, and ensure competencies and career paths are developed for the community. In the Marine Corps, there are 20 communities that encompass more than 350 job series. COIs are led by senior civilians of the community, typically members of the Senior Executive Service. They are responsible for establishing the community vision and plan, in addition to serving as advocates for Civilian Marines who work in the job series within their COIs.

Labor Relations: The Marine Corps maintains relations with 17 bargaining units representing 17,000 Civilian Marines throughout the Marine Corps. Federal unions have a representative role established by statute and are kept informed of programs and changes that will impact employees. A master labor agreement,

covering all bargaining unit employees, was negotiated with the American Federation of Government Employees in an effort to enhance morale and productivity, limit job turnover, and help organizations increase performance and improve business results. The key function of labor relations is to develop strategies for effective communication and investigating and establishing work/life balance initiatives to create a more positive workplace environment.

CIVILIAN POLICE RECRUITMENT INITIATIVE

As Marines continue to deploy worldwide to fill critical national defense requirements, Civilian Marines provide essential installation support here at home.

In 2007, the Marine Corps adopted a plan to hire approximately 1,200 Civilian Police Officers. That expansion of civilian policing will reduce the operational stress on Marine Corps Military Police while improving security and police services across the Marine Corps.

This initiative hired 725 Civilian Police Officers during FY 2008 and FY 2009, with the rest of the hiring programmed for the next two years; this will include the establishment of Marine Corps Police Departments in Bridgeport, CA (Mountain Warfare Training Center) and New Orleans, LA (Federal City). New recruits must complete an intense ten-week regional training academy that certifies them as Marine Corps Police Officers before being assigned to police duties at the installations where they were hired. These Civilian Marines are now working side-by-side with Marine Corps Military Police at Marine Corps installations across the United States. This initiative seeks to attract, hire, and retain a fully viable civilian police workforce by the end of FY 2011.

Total Force Structure Management System (TFSMS)

DESCRIPTION

The Total Force Structure Management System (TFSMS) serves as the authoritative source for the Marine Corps' default force structure data. TFSMS provides a single, accurate, synchronized, and timely system for force structure information in support of the Marine Corps' focus on re-engineering processes to support the enterprise while optimizing its business functions through available information technology. Within the Total Force Management process, TFSMS enhances the Marine Corps' ability to efficiently and effectively address future capabilities in the framework of United States Code Title 10 responsibilities, which include organizing, training, and equipping forces as a component of the national military capability. To facilitate the integration of capabilities into the operating forces, TFSMS specifies Marine Corps force structure requirements and authorizations in the form of Tables of Organizations and Equipment (TO&E), which comprise billets and authorized equipment. Furthermore, TFSMS serves as the primary data source and business process engine for the Total Force Structure Process activities. In 2010, TFSMS' force structuring and technical capabilities are being enhanced to encompass a broader vision to support future Joint Force Management capabilities through the Global Force Management Data Initiative (GFM DI) Organization Servers.

OPERATIONAL IMPACT

TFSMS users span the Marine Corps from HQMC to the operating forces. Transactional users or super users are responsible for the input and maintenance of TFSMS data through submission of TO&E Change Requests (TOECRs). The review and approval of TOECRs is managed through TFSMS Workflow, which extends the Marine Corps' force structure management process down to the unit level by enabling individuals to submit TOECRs that contribute to the makeup of the current and future force.

PROGRAM STATUS

In early 2010, TFSMS has more than 3,000 transactional and 9,000 non-transactional users, which include Marines, civilians, and contractors. TFSMS Block I completes in FY 2010 with Increment II initial capability planned for FY 2012. Increment II establishes the foundation for evolving from force structuring to enabling Total Force Management as it relates to expeditionary force development and the integration of manning, equipping, and training processes. Increment II introduces further net-centric-enabled force structuring functionality, achieve Approved Acquisition Objective process integration and institute "Blue in Support of Green" aviation equipment visibility.

Installations and Military Construction

Marine Corps bases and stations represent irreplaceable national assets. They are fundamental to combat readiness with regard to pre-deployment training and the launching, sustaining, and reconstituting of Marine operating forces. In 2025, Marine Corps installations will provide an even higher quality training environment directly supporting the Total Force in Readiness. Additionally, those bases and stations are and will continue to be integral to the quality of life of Marines, Sailors and their families.

The current operation and maintenance of these installations as well as their future development and use require planning, wise investment, and sound execution. Numerous Corps-wide efforts are underway to ensure Marine Corps installations are ready, responsive, and capable of meeting current and future support requirements of a 202,000-strong Marine Corps.

The Marine Corps has more than $50 billion worth of facilities that are used to train, house, and provide excellent quality of life for Marines and their families. Examples of these facilities are barracks, hangers, runways, sewage treatment plants, roads, and electrical lines. These facilities are used to perform mission-essential tasks, and they must be appropriately maintained. Adequately sustaining required facilities is the highest facilities management priority.

MILITARY CONSTRUCTION

Upon reexamination of the Marine Corps' structure and manning relative to its expected long-term mission needs, the President approved a permanent end strength increase of 27,000 Marines, from the base of 175,000 to 202,000 Marines by 2012. This goal was reached in FY 2009. To ensure that these Marines have adequate facilities in which to live and work, the President's FY 2007 Supplemental request included $324 million to accomplish critical path infrastructure projects. In 2008, Congress approved construction projects that totaled $668 million in the FY 2008 Global War on Terrorism and the FY 2008 Military Construction and Family Housing programs. In FY 2009 and FY 2010, Congress approved $1.4 billion and $2 billion respectively to support "Grow-the-Force" requirements. The balance of this investment requirement, including military construction and family housing, is being aggressively programmed.

The Marine Corps has a multi-faceted program that is addressing baseline infrastructure improvements at installations and supporting the Defense Posture Review Initiative to move Marines to Guam. An additional $325 million in Military Construction has been approved by Congress in support these programs in FY 2010. This funding is critical to maintaining and improving installations and providing adequate facilities both in the continental United States and abroad.

Energy Initiative

The USMC's emerging energy strategy builds on past achievements and will transform the Marine Corps' energy posture to appropriately consider energy in the decision-making process. The new strategy will recognize that expeditionary operations and USMC installations each have sets of energy requirements, challenges, and opportunities. New technologies will be leveraged to reduce energy demands and increase alternative and renewable energy supplies. Accountability and change initiatives will be captured in new policies and doctrine in three primary areas: tactical equipment; facilities; and garrison mobile equipment.

Tactical Equipment. CMC's Policy Memorandum 2-02 introduced the consideration of fuel efficiency Key Performance Parameters (KPPs) in retrofit and acquisition of all major equipment platforms. Although Marine Corps operational energy-reduction efforts are challenged by ongoing overseas contingency operations and the continuing growth of Marine operational forces, two primary approaches are being implemented to reduce expeditionary energy consumption and increase warfighter energy independence. The first is to ensure mandatory consideration of energy efficiency as a KPP in all replacement platforms. The Joint Light Tactical Vehicle, the replacement for the High Mobility Multipurpose Wheeled Vehicle (HMMWV), is the first item to formally incorporate an energy-efficiency KPP. The second is to partner acquisition and Research and Development (R&D) activities to develop and obtain alternative and renewable energy sources. Through January 2010, several R&D initiatives have benefited from Economic Stimulus funding:

- Improved Environmental Control Units – $3.5 million to deliver 15 systems in FY 2010
- Integrated Trailer, Environmental Control Units, and Generators – $2.5 million to field five systems in FY 2010
- Onboard Vehicle Power for both Medium Truck Vehicle Replacements and HMMWVs – $4.0 million to deliver five systems in FY 2010
- Immediate implementation of energy-savings methods and materials in forward-deployed contingency installations (e.g., foaming of relocatable dwellings to reduce energy use for climate control)
- Investment in research, development, and acquisition to reduce battlefield overland supply distribution.

Facilities. In April 2009 the Commandant published the Facilities Energy & Water Management Campaign Plan that addresses strategic and immediate actions to reduce energy usage at Marine Corps installations. This plan under-

scored the Marine Corps' commitment to aggressively identify, develop, and implement energy efficiency strategies as well as to comprehensively develop renewable energy sources to meet mission and mandated requirements. The Commandant's intent for this over-arching effort is to: (1) ensure a secure and reliable energy and water supply to support the operating forces and their families through the efficient management of energy and water facilities infrastructure; (2) achieve energy and water efficiency goals mandated by the President and Congress to support national efforts to lower greenhouse gas emissions, reduce the Nation's dependence on foreign oil, and promote conservation of water supplies; and (3) reduce life-cycle operating costs of Marine Corps facilities and manage future commodity price volatility.

To meet these three goals, the plan identified ten specific actions to be in place by the end of FY 2010 — giving the program the nickname, "Ten x '10" — that the Marine Corps is undertaking in its installations energy program:

- Commitment of top down leadership to energy use reduction
- Ensure appropriate levels of resources are made available to support the required energy and water efficiency initiatives
- Commitment to sustainable facility design and operations
- Procure energy efficient equipment and products
- Invest in emerging energy efficient technology
- Phase out use of incandescent light bulbs by 2010
- Aggressively pursue large-scale renewable energy projects to include geothermal energy where feasible
- Implement aggressive demand-shedding and peak shaving strategies
- Expanded use of the USMC robust Geospatial Information Systems data system to increase real-time energy usage awareness and reduction opportunities

- Implement training and awareness programs to emphasize user controlled reductions

Garrison Mobile Equipment (GME). GME is a centrally managed program of off-the-shelf, commercially available equipment that focuses on supporting installation transportation requirements. These assets are used to perform ground transportation, fire fighting (buildings/grounds and aircraft), rescue functions, construction, material handling, and maintenance functions at Marine Corps installations. In early 2010, the fleet totals more than 13,000 sedans, station wagons, buses, general-purpose heavy and light trucks, fire and refuse-collection trucks and tractors, engineer and construction equipment, forklifts, warehouse cranes, and platform trucks. The GME fleet exists to support the day-to-day operations of the installation and directly supports the operating forces by minimizing the use of tactical vehicles in garrison.

The Marine Corps has in place an aggressive program to pursue petroleum fuel reduction and conservation in the GME fleet. The Marine Corps has repeatedly exceeded the Energy Policy Act of 1992 Alternative Fuel Vehicle acquisition requirements and has been a leader in the

Department of Defense and other Federal agencies in the adoption of efficient vehicle technologies and the use of alternative fuels, including electricity, E85, compressed natural gas, hybrids, biodiesel, and hydrogen.

Recognizing the difficulties of using some alternative fuel vehicles without adequate refueling infrastructure, the Marine Corps is investing in alternative refueling infrastructure (e.g., refueling stations) where needed to complement the increase in alternative fueled vehicles.

Of special note, the Marine Corps is also testing hydrogen-powered fuel cell vehicle operations and has established our first hydrogen generation and refueling station at Camp Pendleton California in support of fuel cell vehicle development.

Environmental, Natural, and Cultural Resources Stewardship

Excellence in warfighting requires unencumbered access to the land, sea, and airspace needed to conduct quality, realistic training. Unless properly managed, Marine Corps land, sea, and airspace resources can become damaged to the point where realistic training is degraded. Effective environmental management ensures mission readiness by allowing the Marine Corps to sustain and enhance these training assets, while protecting the health of local citizens, Marines, and the valuable resources entrusted to the Marine Corps.

Compliance with applicable laws and regulations is as important as ever, and the Marine Corps enhances mission capabilities through a systematic approach to environmental management that promotes integrated land management principles and pollution prevention. To ensure that frequent, repeated use of land for readiness purposes can be sustained, each installation having stewardship responsibilities for natural and/or cultural resources prepares and implements an Integrated Natural Resources Management Plan and an Integrated Cultural Resources Management Plan. Implementation of these plans ensures our lands are managed in a sustainable manner. The Marine Corps also seeks ways to reduce pollution through material substitution, best management practices, and training Marines and civilians to perform their jobs in an environmentally sound manner.

In FY 2009, the Marine Corps established Marine Corps Air Station Miramar and Marine Corps Logistics Base Barstow as "Green" bases to lead efforts to promote sound environmental stewardship through promotion of energy efficiency, use of alternative energy sources, pollution prevention, and sustainable environmental and other installation practices. Projects are underway in FY 2010 or planned for the future to make these installations "Green" models for the Marine Corps and the Department of Defense.

Housing

Bachelor Enlisted Quarters (BEQ). Bachelor housing is one of the Commandant's top Military Construction priorities. The Commandant's BEQ Initiative, initiated in 2006 as part of Program Objective Memorandum 2008, provided more than $1.7 billion in construction funds to correct barracks space shortfalls, implement renovations, and provide collateral equipment. Subsequently, the Commandant approved an additional $1.2 billion in new construction during FY 2009-2013 period to add barracks spaces associated with the "Grow-the-Force" initiative. These initiatives will eliminate existing BEQ space deficiencies and inadequate barracks and achieve the Marine Corps desired "2+0" assignment standard by FY 2014.

The new BEQs will be highly modern living facilities for Marines and Sailors and will include rooms with improved aesthetics and bathroom configurations, enhanced recreation and laundry areas, and will be designed to optimize climate control and energy efficiency. For existing BEQs, we are continuing the "Whole Room Concept" replacement furniture program to replace entire room furnishings on a cyclical basis.

Family Housing. In September 2007, the Marine Corps privatized all family housing units where it was economically advantageous and authorized; for example, military housing legislative authorities prohibit housing privatization at overseas locations. In early 2010, there are more than 22,000 units of housing privatized and less than 1,000 Marine Corps-owned and -managed units remaining.

The Marine Corps has leveraged private financing to government investment at a ratio of approximately 5.4 to 1. This has enabled the Marine Corps to quickly and significantly upgrade family housing infrastructure and improve housing management. As a defining metric, the family housing occupant satisfaction levels continue to be much higher than when the housing units were managed and maintained by the service. Housing referral, the process of assisting military families find housing, is still retained by the government, however.

Constructing deficit housing, mainly attributable to new housing requirements associated with the Grow-the-Force build up, will continue through 2014, principally at MCB Camp Pendleton, MCB Camp Lejeune, and Marine Corps Air Ground Combat Center Twenty Nine Palms. New units constructed at these facilities will be modern and energy efficient, and will continue to improve the quality of life of Marines, Sailors, and their families.

Continuous Process Improvement (CPI)

If the Marine Corps is to transform successfully, the performance of processes that support the warfighter must become more effective and efficient. To that end, the Continuous Process Improvement (CPI) program provides leaders a flexible, internal, economical, disciplined capability to improve performance, safety, and quality of life, and, to mitigate the impact of resource pressure. The terms performance and process improvement are distinctly different but related. Performance Improvement is the result of this program. Process improvement is the means to obtain results.

The Marine Corps invests $5.7 million annually (in labor and training costs) to support performance improvements across the Service. The benefits and results of the investment include:

- A CPI program office and a cadre of in-house performance improvement expertise to coordinate policy, develop standard methods, and assist organizational leaders to build and sustain in-house capability to improve performance
- A "learn by doing" training curriculum that coaches Marines and civilian Marine personnel to make improvements and solve problems using standard improvement methods
- An enterprise-wide software tool that monitors progress of training and improvement projects and shares results from improvement initiatives — so they can be replicated
- Improved readiness, improved quality of life for Marines and family members, improved workforce safety, reduced time required to complete work, and reduced costs

The modest annual investment to create and sustain an internal capability to improve performance will pay dividends indefinitely into the future and will become increasingly more important. Indeed, the value of FY 2009 benefits was estimated at $56.5 million (a 10:1 ratio on investment).

Since 2008, the USMC has completed more than 300 improvement projects, with another 194 in progress in early 2010. Results are being achieved in a variety of areas including: reducing aircraft not mission ready due to supply; reducing cycle time of depot rebuild for Amphibious Assault Vehicles, M-16s, and High Mobility Multipurpose Wheeled Vehicles; reducing wait times for Marines and their family members to obtain identification cards; reducing discharge time for Marines who fail to complete basic training; improving the validation process of invoices; reducing the time required to process valor awards; improving the regional radar service in the southwest region; and streamlining the process to check-in/check out personnel.

The Marine Corps' CPI program is thus a critical element in performance, readiness, safety, quality of life, and stewardship of the taxpayer resources entrusted to us.

Marine Corps Reserve

Reserve Marines understand the cost of protecting the American way of life, and although some have paid the ultimate price, dedicated men and women continue to volunteer to serve their country in the Marine Corps Reserve. The Marine Corps Reserve continues to fill critical requirements in support of overseas contingency operations, particularly in Iraq and Afghanistan. At home, Marine Forces Reserve maintains Reserve Marines and assets pre-positioned throughout the country, ready to assist with not only national defense missions, but also civil-military missions such as providing disaster relief.

Despite the current high operational tempo, the Marine Corps Reserve continues to recruit and retain top-notch Marines. New Marines are consistently brought into the Reserves at a rate of 20 to 25 percent of the Selected Reserve's end strength per year. This, in addition to our current force, provides continued capability to augment and reinforce the Active Component. As the Active Component increased its end strength to 202,000, it is important to note that higher levels of retention in the Active Component, and greater numbers of Marines from the Reserve Component volunteering for full-time active duty with the Active Component, reduced the number of personnel transitioning into the Selected Marine Corps Reserve.

The Marine Corps Reserve is a full partner of the Marine Corps' Total Force. Reserve Marines continue to prove their dedication to their country and fellow citizens. Their continuing honor, courage, and commitment to warfighting excellence while maintaining close ties to their community truly set them apart as "citizen soldiers." They recognize that they have a crucial mission and the American people will continue to expect the most from them while continuing to support them. Marine Forces Reserve, with its well-equipped, well-led, and well-trained professional men and women, will continue to be an integral part of the Marine Corps.

PART 10:

FORCE PROTECTION

INTRODUCTION

Force Protection covers a wide range of programs from non-lethal weapons to chemical, biological, radiological, and nuclear (CBRN) detection and protection equipment. Non-lethal capabilities increase survivability of friendly forces and non-combatants by providing the ability to apply force in circumstances where minimizing casualties and collateral damage is critical. CBRN equipment provides the Marine with the necessary capability to operate in a contaminated environment and still accomplish the mission. These are important supporting programs for the Marine and the operating forces.

Joint Non-Lethal Weapons Program (JNLWP)

DESCRIPTION

The Department of Defense (DoD) defines non-lethal weapons as "weapons, devices, and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel and undesired damage to property in the target area or environment. Non-lethal weapons are intended to have reversible effects on personnel and materiel."

Since 1996, the JNLWP has been overseeing the research and development of non-lethal weapons and stimulating non-lethal requirements. The JNLWP makes program recommendations to the services regarding fielding of non-lethal weapons and assists in the development of training programs. The Commandant of the Marine Corps serves as the Executive Agent for the DoD Non-Lethal Weapons Program and as such is an active service participant in the JNLWP. The Joint Non-Lethal Weapons Directorate, based at Marine Corps Base Quantico, VA, manages the day-to-day operations of the program.

OPERATIONAL IMPACT

The Marine Corps recognizes that future conflicts will seldom be classified as either solely conventional or irregular warfare; rather, they will be hybrid conflicts requiring a broad range of capabilities. A key concept the Marine Corps has adopted in response to hybrid warfare is the "3-block war" construct, which places operations into three categories: assist (humanitarian/disaster response); enforce (stability operations); and defeat (counter-insurgency and major combat operations).

Meeting the challenge of protecting the force in an environment such as the "3-block war," where the enemy's use of asymmetric tactics requires the operating forces to have the ability to adapt to situations using escalation of force (EoF) capabilities. EoF comprises the application of and, if necessary, elevation to the minimum force necessary to achieve objectives. To support the development of additional and enhanced Marine Corps-specific requirements, the Marine Corps developed an Initial Capabilities Document (ICD) for EoF which was approved by the Marine Requirements Oversight Council (MROC) in August 2009.

Currently, the EoF Mission Modules (EoF-MM) and the Dazzling Laser are contributing to the Marine Corps' ability to successfully conduct stability operations in theater.

PROGRAM STATUS

Many non-lethal weapons are already fielded, and research efforts continue on a host of developing technologies that will help fill many of the non-lethal capability gaps the services have identified. Fielded non-lethal weapons include blunt-impact munitions, optical warning and distraction devices, acoustic hailing devices, vehicle arresting devices, flash-bang grenades and munitions, and temporary incapacitation devices such as human electro-muscular incapacitation (HEMI) devices.

MAGTF CBRN Assessment and Consequence Management Set (MAGTF CBRN ACM Set)

DESCRIPTION

The MAGTF CBRN ACM Set is a suite of specialized detection/identification and protective equipment that enhances traditional passive defense operations and allows chemical, biological, radiological, and nuclear (CBRN) reconnaissance elements to confirm or deny the presence of a broad range of CBRN hazards and provide protection to operate in the most hazardous of environments. CBRN defense personnel at the major subordinate command (MSC) and Marine Expeditionary Unit (MEU) levels, in the active and reserve forces, use the MAGTF CBRN ACM set.

OPERATIONAL IMPACT

The MAGTF CBRN ACM Set will provide a more efficient and effective detection and identification capability to the MAGTF commander. The MAGTF CBRN ACM Set will support the characterization of hazardous material attacks, events or accidents across the range of military operations and combat weapon of mass destruction (WMD) operations. This capability will enhance the commander's risk-based decision-making ability as it pertains to contamination avoidance, personal protection, and CBRN reconnaissance.

PROGRAM STATUS

Fielding of the MAGTF CBRN ACM Sets began in the second quarter FY 2009. The Approved Acquisition Objective is 27 sets (two per MSC, one per MEU, and two at Marine Forces Reserve). All 27 sets have been procured and fielding is anticipated to be completed by third quarter FY 2010.

Hailing and Warning Green Beam Laser Systems

DESCRIPTION

The Marine Corps adopted the use of Green Beam Laser Systems in support of Escalation of Force (EoF) type missions. This non-lethal device provides a visual warning capability to gain the attention of personnel approaching lethal force authorized zones. The current systems authorized for use are the Green Beam Designator III (Custom) (GBD-IIIC) and the 532P-M Glare MOUT (Mini-Green) systems. The systems provide safe and effective visual hail and warn technology to minimize the risk of injury or death to civilian and military personnel as well as limit collateral damage to property and local infrastructure. To help in further reducing the risk of injury, a Safety Control Module (SCM) has been incorporated onto the GBD-IIIC. The SCM prevents inadvertent lazing within the nominal ocular hazard distance of the system. Once incorporated on the GBD-IIIC, the system is designated as the LA-9/P.

OPERATIONAL IMPACT

The LA-9/P and Mini-Green allow personnel engaged in combat, stability and security, and force-protection operations to employ an intense visual cueing device to hail and warn personnel and vehicles at safe standoff distances. The two laser systems, along with other non-lethal weapons systems, will provide EoF capabilities to protect Marines against the threat of Vehicle Borne Improvised Explosive Devices (VBIEDs).

PROGRAM STATUS

A total of 1,185 GBD-IIICs have been fielded. Deliveries of the SCM began in fourth quarter FY 2009. In addition to the 1,185 GBD units, an additional 282 LA-9/P will be procured during FY 2010. The Mini-Greens were provided to the Marine Corps by the Army Rapid Equipping Force in 2008. The Marine Corps will acquire an additional 228 Mini-Green systems in FY 2010. The LA-9/P and the Mini-Green will be replaced by the Ocular Interruption Device beginning in FY 2015.

Procurement Profile:	FY 2010	FY 2011
LA-9/P:	282	0
Mini-Green:	228	0

Developer/Manufacturer:
B. E. Meyers Inc, Redmond, WA

VENOM™ Non-Lethal Tube Launched Munitions System (NL/TLMS)

DESCRIPTION

The VENOM™ NL/TLMS is a 40mm, multi-shot, electrically actuated, non-lethal munitions grenade launcher mounted to the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) Marine Corps Transparent Armored Gun Shield (MCTAGS) turret. The NL/TLMS consists of three banks of ten launch tubes, each at fixed angles of 10, 20, and 30 degrees from the horizontal, achieving 360° degree coverage by traversing the HMMWV turret. The NL/TLMS fires a multi-flash-bank grenade out to a range of approximately 130 meters. The system comprises a launcher, hand controller, and cable subsystems. The hand-controller firing system is used to fire the three banks of ten rounds each.

OPERATIONAL IMPACT

The NL/TLMS will enable Marines to deter and dissuade errant vehicle operators from encroaching security zones established during convoy, vehicle check point, and entry control point operations by providing a high volume of non-lethal fire at range during day and night missions. This capability will increase the standoff distance between the Marine and a potential threat while allowing time to determine intent and to escalate force if necessary.

PROGRAM STATUS

A Limited User Evaluation was conducted on the NL/TLMS by operating forces at the Expeditionary Systems Evaluation Division (ESED) of the Naval Surface Warfare Center (NSWC Crane) located in Fallbrook, CA from 19 April through 2 May 2009. Twenty-five NL/TLMS are planned to undergo an Operational Environmental Evaluation (OEE) in theater during the second quarter FY 2010 and will be subsequently fielded as initial production units.

A full rate production contract for 225 systems is scheduled to be awarded in the second quarter FY 2010. The NL/TLMS Approved Acquisition Objective is 250 units.

Procurement Profile:	FY 2010	FY 2011
VENOM™:	225	0

Developer/Manufacturer:
Combined Systems, Inc., Jamestown, PA

Mission Payload Module Non-Lethal Weapons System (MPM-NLWS)

DESCRIPTION

The Mission Payload Module Non-Lethal Weapons System (MPM-NLWS) program will develop and field a new vehicle-mounted, tube-launched munitions delivery system with a novel pyrotechnic munition designed to render targeted personnel temporarily incapacitated. It will disable, inhibit, or degrade one or more functions or capabilities of a target to render it ineffective within a specified zone of influence. The objective of the program is to provide a capability to deliver counter-personnel non-lethal effects applicable to controlling crowds, denying or defending areas, controlling access, and engaging threats while providing sufficient standoff for protection of friendly forces. The initial increment of MPM-NLWS will be mounted onto the Marine Corps Transparent Armored Gun Shield (MCTAGS) on a High Mobility Multipurpose Wheeled Vehicle (HMMWV) and its replacement vehicle.

OPERATIONAL IMPACT

The MPM-NLWS will allow the Marine infantryman to effectively launch non-lethal munitions to a broader area with a greater duration of effects and volume of fire. Employment of the MPM-NLWS will grant commanders additional options short of lethal force and flexibility in implementing rules of engagement with less-restrictive measures.

PROGRAM STATUS

MPM-NLWS achieved Milestone A in 2004. The Capability Development Document was approved in November 2007. Anticipate awarding contracts to industry for the Technology Development Phase in the second quarter FY 2010. The Approved Acquisition Objective is 312 units, with IOC anticipated in the first quarter FY 2016.

Developer/Manufacturer: TBD

Escalation of Force Mission-Module (EoF-MM)

DESCRIPTION

The Escalation of Force Mission Module contains equipment required to satisfy the operational requirement for an enhanced capability to apply non-lethal force. The EoF-MM will consist of selected equipment that provides operational capabilities for use during escalation of force situations found primarily, but not exclusively, when operating under restricted rules of engagement.

The EoF-MM will support the following capabilities: vehicle control point; entry control point; convoy security; crowd control; detain personnel; conduct search; clear facilities; conduct cordon; urban patrol; and establish and secure perimeter.

The basic building block of the EoF-MM is the Equipment Set. Each Equipment Set will consist of specific material and non-material solutions that, when used together, enable Marines to adequately and safely complete a select Mission Capability Task. Two or more Equipment Sets combine to form a Capability Module that provides the equipment and supplies to perform a given task, such as establish and secure perimeter or conduct cordon.

OPERATIONAL IMPACT

The EoF-MM provides the appropriate weapons and equipment to employ a range of non-lethal operations and non-lethal tactics. The fielding of the EoF-MM to the operating forces is intended to augment existing lethal capabilities.

PROGRAM STATUS

Fifty-three EoF-MM Capability Sets will be procured and fielded in a two increments. MCCDC is in the process of identifying the items comprising Increment 2. Once decisions have been made, a detailed schedule will be developed on the delivery of the EoF-MM and disposal/retrofit of the in-service Force Protection Capability Set (FPCS).

Procurement Profile:	FY 2010	FY 2011
EoF-MM:	43	10

Developer/Manufacturer:
Aardvark Tactical Incorporated, Azusa, CA

Identity Dominance System (IDS)

DESCRIPTION

The requirement for an enduring Marine Corps biometric capability originated from urgent warfighter requests to support counter-insurgency operations in Iraq and Afghanistan. The Biometric Automated Toolset (BAT) is the currently fielded system that was a commercial-off-the-shelf (COTS) item delivered to fulfill an immediate need. The Identity Dominance System will replace BAT with improvements such as increased data storage and longer battery life. The IDS will be a multimodal biometric collection system that collects and compares unique, individual biometric characteristics to enroll, identify and track persons of interest and build digital dossiers on the individuals for purposes that include anti-terrorism/force protection, local employee screening, detention management, civil affairs, base access, humanitarian assistance, population control, counter intelligence and high-value target identification. The IDS is anticipated to be a three-tiered system with hardware and software including a server suite capability, a client suite capability, and a family of hand-held capabilities.

OPERATIONAL IMPACT

The primary mission of the IDS is to provide the Marine Air-Ground Task Force (MAGTF) with the means to identify persons encountered in the battlespace. The capability requires that the MAGTF commander be able to collect, match, store, and share biometric data. The IDS will enable the Marine to collect appropriate biometric, biographical and reference information on an individual and match this locally developed information with pre-existing information available to the expeditionary force.

PROGRAM STATUS

IDS is seeking a Milestone B decision in FY 2010. It is designated as ACAT I – Special Interest based on a September 2008 Acquisition Decision Memorandum that assigned all DoD biometrics systems to that category. IDS is scheduled for IOC in FY 2013.

Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW)

DESCRIPTION

The CREW systems are vehicle-mounted, fixed-site, and man-portable backpack active/reactive electronic countermeasure systems (ECM) designed to counter high and low powered radio-controlled improvised explosive devices.

OPERATIONAL IMPACT

The Marine Corps CREW program provides Marines with an effective electronic warfare capability to counter the threat posed by RCIEDs and to improve force protection. By the end of FY 2010, CREW Vehicle Receiver/Jammer (CVRJ) will be the primary vehicle-mounted jammer, having fully replaced Chameleon and Hunter. The Quick Reaction Dismounted (QRD) system is the current man-portable system. It provides coverage in the low to high band range depending upon the system configuration, protecting troops from RCIEDs when they are dismounted and operating outside the protective envelop of a mounted or fixed site CREW system. Marine Corps CREW will sustain 423 QRD systems until they are replaced with CREW 3.1 systems in FY 2010. The CVRJ system will provide the necessary force protection required in the current conflicts.

PROGRAM STATUS

The Marine Corps CREW program was designated as an ACAT II program in February 2007, and was granted a full-rate production decision in March 2007. The CREW program initially acquired a total of 10,089 Chameleon and Hunter systems. This initial capability evolved into CREW 2.1, the CVRJ. In February 2009 the CREW Program Office Acquisition Strategy/Acquisition Plan (AS/AP) was approved for acquisition of up to 8,000 CVRJs. The spiral 3.3 Joint CREW (JCREW) Capabilities Development Document was approved on 23 December 2008. JCREW 3.3 is the next iteration of CREW systems and its planned Marine Corps Approved Acquisition Objective is 4,500 systems. JCREW Initial Operational Capability is scheduled for FY2013 and Full Operational Capability is scheduled for FY 2015. The Joint CREW Program Office is the lead acquisition agency for CVRJ and future CREW systems.

CHAPTER 4

CURRENT OPERATIONS

Today, the Marine Corps is deployed around the globe engaged in several overseas contingency operations. With more than 24,000 Marines deployed throughout the U.S. Central Command and other austere locations worldwide, we are fighting a cunning and adaptive enemy in increasingly complex forms of warfare.

Deployed Marine forces have participated in over one-hundred theater security cooperation events which ranged from mobile training teams in Central America to Marine Expeditionary Unit exercises in Djibouti, Jordan, and Qatar. Units have supported civil, military, and humanitarian assistance operations such as New Horizons events in Georgetown, Guyana and land mine removal in Azerbaijan.

The persistent engagement of the Marine Air Ground Task Force (MAGTF) in supporting U.S. National Security objectives has remained enduring through the decades. During 1990 and 1991 and again from 2003 to 2009, Marine combat forces were deployed to Iraq in support of Desert Storm and Operation Iraqi Freedom. Marines have been involved in Operation Enduring Freedom (OEF) in Afghanistan from its inception in 2001. During the period 1992 to 2002 Marine units continuously deployed to support humanitarian missions providing much needed assistance in times of crisis involving earthquakes and floods and they assisted in the evacuation of noncombatants. Finally, Marine units were often called upon to provide security deployments to enforce no-fly zones, maritime interdiction, and counter-drug/peacekeeping operations. These trends clearly indicate the continued relevance of the MAGTF to effectively meet the ever changing demands of a dynamic world.

In 2009, the Marine Corps was called upon, as in previous years, to participate in a wide range of operations and training exercises to support geographical combatant commanders. The following list highlights a majority of these operations and exercises.

U.S. Northern Command

Operations and Contingencies

Mission	Location	Unit	Dates
Joint Task Force – North (JTF-N)			
Intelligence Support	San Diego, CA Laredo, TX	Det, MARFORRES	17 Sep 08 – 8 Mar 10
Engineer Road Support	Columbus, NM 4th CEB	Det, MWSS-172	9 Jan 09 – 13 Feb 09 2 Jun 09 – 4 Jul 09
Ground Sensors Support	San Ysidro, CA	Det, 4th Ground Sensor Plt	1 Feb 09 – 30 Mar 09
Aviation Recon Support	San Ysidro, CA	HMLA-269 Det, HMM-764 Det, MAG-29	9 Feb 09 – 30 Mar 09
Ground Sensors Support	Tucson, AZ	15th MEU	9 Oct 09 – 19 Nov 09
Naval Security			
Refuel/Defuel Security	Norfolk, VA	3rd Plt, 2d FAST Co	1 Aug 09 – 20 Oct 09
64th UN General Assembly			
EOD Support	New York, NY	Det, 9th ESB	17 Sep 09 – 28 Sep 09

Exercises and Theater Security Cooperation

Exercise	Location	Unit	Dates
Mojave Viper (OIF/OEF Pre-deployment Training)			
1-09	29 Palms, CA	2d Bn, 1st MAR	27 Oct 08 – 27 Nov 08
2-09	29 Palms, CA	1st Bn, 7th MAR	17 Nov 08 – 18 Dec 08
3-09	29 Palms, CA	2d Bn, 8th MAR	29 Dec 08 – 29 Jan 09
4-09	29 Palms, CA	1st Bn, 8th MAR	12 Jan 09 – 12 Feb 09
5-09	29 Palms, CA	3d Bn, 3d MAR	26 Jan 09 – 26 Feb 09
6-09	29 Palms, CA	2d Bn, 23d MAR	9 Feb 09 – 12 Mar 09
7-09	29 Palms, CA	1st Bn, 5th MAR	2 Mar 09 -2 Apr 09
8-09	29 Palms, CA	2d Bn, 3d MAR	16 Mar 09 – 16 Apr 09
9-09	29 Palms, CA	Not Conducted	Not Conducted
10-09	29 Palms, CA	3d Bn, 9th MAR	30 May 09 – 26 Jun 09
11-09	29 Palms, CA	1st Bn, 6th MAR	30 May 09 – 26 Jun 09
12-09	29 Palms, CA	3d Bn, 4th MAR	4 Jul 09 – 31 Jul 09
13-09	29 Palms, CA	3d Bn, 6th MAR	4 Jul 09 – 31 Jul 09
14-09	29 Palms, CA	3d Bn, 24th MAR	8 Aug 09 – 4 Sep 09
15-09	29 Palms, CA	2d Bn, 2d MAR	8 Aug 09 – 4 Sep 09
16-09	29 Palms, CA	1st Bn, 3d MAR	12 Sep 09 – 9 Oct 09
1-10	29 Palms, CA	1st Bn, 4th MAR 3d Bn, 7th MAR	13 Nov 09 – 11 Dec 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
Weapons and Tactics Instruction			
Aviation Training	Yuma, AZ	Various aviation units	4 Sep 08 – 14 Oct 08
Aviation Training	Yuma, AZ	Various aviation units	2 Mar 09 – 26 Apr 09
Aviation Training	Yuma, AZ	Various aviation units	10 Sep 09 – 13 Oct 09
Desert Talon			
Aviation Training	Yuma, AZ	2d MAW units	5 Dec 08 – 20 Dec 08
Northern Edge			
Joint Interoperability	Eielson, AK	1st MAW units	9 Jun 09 – 26 Jun 09
Marine Week			
Public Relations	Chicago, IL	Det, HMM-774 Det, HMH-461 Det, VMM-162 Det, HMM-162 Det, Marine Barracks Det, MCSF Regiment	11 May 09 - 17 May 09

U.S. Southern Command

Operations and Contingencies

Mission	Location	Unit	Dates
Enduring Freedom (JTF-GITMO)			
Detainee Operations	Guantanamo, Cuba	2 Plts, FAST Co	Continual Rotation

Exercises and Theater Security Cooperation

Exercise	Location	Unit	Dates
Beyond the Horizon			
Humanitarian Assistance	Honduras Dominican Republic	Det, 4th CAG	2 Feb 09 – 26 Jun 09
Humanitarian Assistance	Colombia	Det, 4th CAG	1 Jul 09 – 31 Jul 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
New Horizons			
Humanitarian Assistance	Guyana	Det, 4th CAG	17 Jun 09 – 15 Sep 09
Medical Readiness	Peru	Det, 4th Medical Bn	5 Sep 09 – 11 Sep 09
Tradewinds			
Maritime Security	The Bahamas Dominican Republic	Det,MARFORSOUTH	4 Mar 09 – 18 Mar 09
Fuerzas Aliadas Humanitaria 09			
Disaster Preparedness	Costa Rica	Det,MARFORSOUTH	20 Apr 09 – 24 Apr 09
Southern Exchange 09			
Combined Interoperability	Brazil	Det,MARFORSOUTH Det, 24th MAR	12 Jul 09 – 31 Jul 09
PANAMAX 09			
Panama Canal Defense	Panama	Det,MARFORSOUTH Det, 3rd CAG	11 Sep 09 – 22 Sep 09
Dutch Marine Bi-Lateral			
Combined Interoperability	Aruba Curacao	Det, 2d Force Recon Co.	24 Oct 09 – 16 Nov 09
Theater Security Cooperation			
Southern Partnership Station	Caribbean	Det, MCTAG aboard HSV *Swift*	15 Nov 08 – 15 Apr 09
Southern Partnership Station	Southern Cone of South America	Det, II MEF aboard USS *Oak Hill*	23 Jun 09 – 23 Aug 09
Southern Partnership Station	Caribbean	Det, II MEF aboard USS *Wasp*	1 Oct 09 – 21 Dec 09
Amphibious Raid Training	Panama	Det, MCTAG	15 Nov 08 – 20 Dec 08
Water Survival Training	Colombia	Det, Marine Water Survival School	11 Jan 09 -24 Jan 09
Amphibious Raid Training	Colombia	Det, MCTAG	13 Jan 09 – 7 Feb 09
Small Unit Tactics Training	Honduras	Det, MCTAG	18 Jan 09 – 7 Feb 09
Marksmanship Training	Colombia	Det, TECOM	1 Feb 09 – 17 Feb 09
Non-Lethal Weapons Training	Colombia	Det, MCTAG	8 Feb 09 – 22 Feb 09
Advance Infantry Training	Colombia	Det, MCTAG	16 Feb 09 – 21 Feb 09
Training Management	Colombia	Det, TECOM	15 Feb 09 – 21 Feb 09
Advance Infantry Training	Columbia	Det, MCTAG	16 Feb 09 – 12 Mar 09
Non-Lethal Training	Colombia	Det, MCTAG	13 Mar 09 – 25 Mar 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
Theater Security Cooperation (cont.)			
Leadership Development	Uruguay	Det, MCTAG	17 Apr 09 – 8 May 09
Marital Arts Training	Brazil	Det,MARFORSOUTH	23 May 09 - 30 May 09
Marksmanship Training	Panama	Det, MCTAG	6 Jun 09 – 20 Jun 09
Small Unit Tactics Training	Guatemala	Det, MCTAG	1 Aug 09 – 29 Aug 09
Manpower Management	Colombia	Det, HQMC	9 Aug 09 – 15 Aug 09
Bulk Fuel Training	Colombia	Det, Bulk Fuel School	24 Aug 09 – 11 Sep 09
Legal Training	Colombia	Det,MARFORSOUTH	31 Aug 09 – 5 Sep 09
Water Survival Training	Colombia	Det, Marine Water Survival School	8 Sep 09 – 13 Sep 09
Small Unit Tactics Training	Nicaragua	Det, MCTAG	12 Sep 09 – 26 Sep 09
Counter IED Training	Colombia	Det, Engineer School	20 Sep 09 – 26 Sep 09
Bulk Fuel Training	Colombia	Det, Bulk Fuel School	20 Sep 09 – 7 Oct 09
Small Arms Training	Panama	Det, MCTAG	17 Oct 09 – 30 Oct 09
Training Management	Colombia	Det, SOI East	31 Oct 09 – 20 Nov 09
Marksmanship Training	Colombia	Det, Weapons Training Bn	15 Nov 09 – 21 Nov 09
Small Unit Tactics Training	Nicaragua	Det, MCTAG	21 Nov 09 – 12 Dec 09
Counterinsurgency Training	Dominican Republic	MSOT 8	8 Oct 08 – 30 Mar 09

U.S. European Command

Operations and Contingencies

Mission	Location	Unit	Dates
Enduring Freedom			
Coalition Support	Norway	Det, MARFOREUR	30 Oct 09 – 3 Nov 09
Coalition Support	Croatia	Det, MARFOREUR	26 Feb 09 – 3 Mar 09 13 Apr 09 – 16 Apr 09
Coalition Support	Lithuania	Det, MARFOREUR	8 May 09 – 12 May 09 28 Jun 09 – 29 Jun 09
Coalition Support	Finland	Det, MARFOREUR	28 Jun 09 – 2 Jul 09
Coalition Support	Estonia	Det, MARFOREUR	8 Jul 09 – 25 Jul 09 4 Aug 09 – 20 Aug 09
Coalition Support	Georgia	Det, MARFOREUR Det, MCTAG	15 Aug 09 – 18 Aug 09
Coalition Support	Poland	Det, MARFOREUR	13 Aug 09 – 18 Aug 09
Naval Security			
Physical Security	Spain	2 Plts, FAST Co	Continual Rotation

Exercises and Theater Security Cooperation

Exercise	Location	Unit	Dates
Austere Challenge			
Joint Interoperability	Germany	Det, MARFOREUR	22 Jan 09 – 6 Feb 09
Joint Interoperability	Germany	Det, MARFOREUR	20 Apr 09 – 8 May 09
Noble Shirley			
Anti-Terrorism Training	Israel	Det, MCSF Regiment	23 Feb 09 – 12 Mar 09
Anti-Terrorism Training	Israel	Det, Antiterrorism Bn	14 Jun 09 – 10 Jul 09
Anti-Terrorism Training	Israel	3d Plt, 1st FAST Co	10 Aug 09 – 27 Aug 09
Joint Warrior			
Combined Interoperability	United Kingdom	1st ANGLICO Det, 10th MAR	6 May 09 – 27 May 09
Combined Interoperability	United Kingdom	Det, 2d ANGLICO Det, 4th ANGLICO	30 Sep 09 – 18 Oct 09
Seabreeze			
Maritime Interoperability	Norway	Det, MARFOREUR	28 May 09 – 3 Jun 09
Tartan Eagle			
Anti-Terrorism Training	United Kingdom	Det, 2d FAST Co	26 Jun 09 – 14 Jul 09
Allied Strike III			
JTAC Training	Germany	3d and 4th ANGLICO	23 Jul 09 – 9 Aug 09
Combined Endeavor 09			
Combined Interoperability	Bosnia	Det, MARFOREUR	24 Aug 09 – 18 Sep 09
Loyal Midas 09			
Maritime Interoperability	Greece	15th MEU 4th LSB	1 Sep 09 – 30 Sep 09
Immediate Response			
Combined Interoperability	Georgia	Det, MARFORCOM Det, MCIA	24 Oct 09 – 7 Nov 09
Steadfast Indicator			
Combined Interoperability	Romania	Det, MARFORRES	26 Sep 09 – 18 Oct 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
Theater Security Cooperation			
NCO Development	Azerbaijan	Det, MARFOREUR	13 Dec 08 – 21 Dec 08
Non-Lethal Weapons Training	Germany	Det, 4th MLG	11 Jan 09 – 16 Jan 09
NCO Development	Azerbaijan	Det, MARFOREUR	8 Mar 09 – 15 Mar 09
Officer Development	Bulgaria	Det, MARFOREUR	9 Mar 09 – 14 Mar 09
Manpower Management	Ukraine	Det, HQMC	15 Mar 09 – 21 Mar 09
Peacekeeping Training	Montenegro	Det, MARFOREUR	16 Mar 09 – 20 Mar 09
Intelligence Training	Georgia	Det, MARFOREUR	15 Mar 09 – 4 April 09
MOUT Training	Moldova	Det, MARFOREUR	22 Mar 09 – 28 Mar 09
Communications Training	Macedonia	Det, MARFOREUR	23 Mar 09 – 27 Mar 09
Logistics Training	Armenia, Georgia, Bosnia	Det, MARFOREUR	31 May 09 – 6 Jun 09
Communications Training	Azerbaijan	Det, MARFOREUR	31 May 09 – 6 Jun 09
Intelligence Training	Romania	Det, MARFOREUR Det, TECOM	8 Jun 09 – 19 Jun 09
NCO Development	Azerbaijan	Det, MARFOREUR	6 Jun 09 – 13 Jun 09
Counter-Intel Training	Georgia	Det, MARFOREUR Det, Intel Support Bn	21 Jun 09 – 26 Jun 09
Mortuary Affairs Training	Germany	Det, 4th MLG	11 Jul 09 – 20 Sep 09
MOUT Training	Albania	Det, MCSF Regiment	19 Jul 09 – 24 Jul 09
Communication Training	Serbia	Det, MARFOREUR	19 Jul 09 – 24 Jul 09
Communication Training	Romania	Det, MARFORRES	19 Jul 09 – 24 Jul 09
Officer Development	Georgia	Det, Intel Support Bn	15 Aug 09 – 6 Nov 09
Skills Assessment	Azerbaijan	Det, SCETC	12 Sep 09 -21 Sep 09
NCO Development	Azerbaijan	Det, MARFOREUR	20 Sep 09 – 27 Sep 09
Non-Lethal Weapons Training	Germany	Det, MARFOREUR	22 Sep 09 – 24 Sep 09
Non-Lethal Weapons Training	Germany	Det, MARFOREUR Det, MWSS-471	24 Oct 09 – 7 Nov 09

U.S. Africa Command

Operations and Contingencies

Mission	Location	Unit	Dates
Enduring Freedom (CJTF-Horn of Africa)			
Security Cooperation	Djibouti	Det A, HMH-464	1 Aug 08 – 31 Jan 09
Security Cooperation	Djibouti	Det, MWSS-471	16 Sep 08 – 1 Apr 09
Enduring Freedom (JSOTF-Trans Sahara)			
Intelligence Support	Mali	Det, MARFORAF	27 Apr 09 – 11 May 09 18 Nov 09 – 20 Dec 09
Logistics Support	Senegal	Det, MARFORAF	8 Sep 09 – 19 Sep 09
Jupiter Sentinel			
Presidential Support	Various locations	Det, HM-461 Det, MALS-29 Det, MCSF Regiment	22 Jun 09 – 1 Aug 09

Exercises and Theater Security Cooperation

Exercise	Location	Unit	Dates
African Contingency Operations and Training Assistance (ACOTA)			
Peacekeeping Training	Cameroon, Benin	Det, MCTAG	17 Nov 08 – 12 Dec 08
Peacekeeping Training	Rwanda	Det, MCTAG Det, MARFORRES	26 Jan 09 – 6 Feb 09 16 Oct 09 – 5 Nov 09
Peacekeeping Training	Senegal	Det, MCTAG	28 Jan 09 – 11 Feb 09
Peacekeeping Training	South Africa	Det, MCTAG Det, MARFORRES	1 Feb 09 – 14 Feb 09 16 Feb 09 – 27 Feb 09
Peacekeeping Training	Ghana	Det, MCTAG	9 Mar 09 – 21 Mar 09
Peacekeeping Training	Tanzania	Det, MCTAG	16 Mar 09 – 10 Apr 09
Peacekeeping Training	Ethiopia	Det, MCTAG	10 Aug 09 – 4 Sep 09
Judicious Response			
Command Post Exercise	Germany	MARFORAF	3 Aug 09 – 14 Aug 09
Shared Accord			
Combined Interoperability	Benin	3d Bn, 23d MAR Det, 4th Dental Bn Det, 6th Comm Bn Det, 6th ESBn	26 May 09 – 29 Jun 09
African Lion			
Combined Interoperability	Morocco	3d Bn, 23d MAR Det, 4th MLG Det, 4th MAW	25 Apr 09 – 10 Jun 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
MEDFLAG 09			
Disaster Preparedness	Swaziland	Det, 8th Comm Bn Det, MARFORAF	31 Jul 09 – 16 Aug 09
African Endeavor 09			
Communications Exercise	Gabon	Det, MARFORAF	28 Sep 09 – 9 Oct 09
Natural Fires 10			
Disaster Preparedness	Uganda	Det, 4th LSBn	1 Oct 09 – 29 Oct 09
Theater Security Cooperation			
Africa Partnership Station	West Africa	Det, MCTAG aboard USS *Nashville*	15 Jan 09 – 16 Jun 09
Intel Officer Training	Mali	Det, MARFORAF	30 Oct 08 – 6 Feb 09
Water Survival Training	Cameroon	Det, MARFORRES	10 Feb 09 – 20 Feb 09
Small Arms Training	Ghana	Det, II MEF	13 Feb 09 – 27 Feb 09
Squad Tactics Training	Cameroon	Det, SCETC	16 Feb 09 – 27 Feb 09
Doctrine Development	Cameroon	Det, SCETC	27 Feb 09 – 6 Mar 09
Supply Training	Senegal	Det, 4th MLG	9 Mar 09 – 13 Mar 09
Maintenance Training	Botswana	Det, SCETC	9 Mar 09 – 13 Mar 09
Intelligence Training	Cameroon	Det, MCIA	9 Mar 09 – 13 Mar 09
Intel Officer Training	Nigeria	Det, MARFORAF	6 Apr 09 – 26 Jun 09
QRF and Marital Arts Training	Cameroon	Det, MCTAG	4 May 09 – 8 May 09
Intelligence Training	Mozambique	Det, Intel Support Bn	15 Jun 09 – 19 Jun 09
Logistics Training	Mozambique	Det, TECOM	27 Jul 09 – 31 Jul 09
Logistics Training	Sierra Leone	Det, MWSG-47	8 Aug 09 – 3 Sep 09
Force Protection Training	Ghana	Det, 4th MLG	15 Aug 09 – 22 Aug 09
Logistics Training	Cameroon	Det, 4th MLG	23 Aug 09 – 28 Aug 09
NCO Development	Cameroon	Det, MARFORAF	13 Sep 09 – 27 Sep 09
Intel Officer Training	Senegal	Det, Intel Support Bn	15 Sep 09 – 13 Dec 09
Intelligence Training	Tanzania	Det, MARFORAF	28 Nov 09 – 5 Dec 09

U.S. Pacific Command

Operations and Contingencies

Mission	Location	Unit	Dates
Enduring Freedom (JSOTF-Philippines)			
Counterinsurgency Training	Philippines	Det, III MEF	Continual Rotation
Counterinsurgency Training	Philippines	MSOC C	26 Jan 09 -20 Feb 09
Counterinsurgency Training	Philippines	MSOC A	2 Feb 09 – 25 Mar 09
Naval Security			
Physical Security	Japan	2 Plts, FAST Co	Continual Rotation
JTF Joint Accounting			
EOD Support	Laos	Det, CSSG-3	13 Apr 09 – 13 Jun 09
Engineer Support	Laos	Det, 9th ESBn	5 Oct 09 – 10 Dec 09
Engineer Support	Vietnam	Det, 9th ESBn	12 Oct 09 – 10 Dec 09

Exercises and Theater Security Cooperation

Exercise	Location	Unit	Dates
Forest Light			
Bilateral Field Exercise	Japan	Det, 31st MEU	3 Dec 08 – 31 Dec 08
Bilateral Field Exercise	Japan	Det, 3d MARDIV	2 Jan 09 – 29 Jan 09
Yama Sakura			
Bilateral Command Post Exercise	Japan	Det, 3d MARDIV	2 Dec 09 – 16 Dec 09
Shatrujeet			
Bilateral Field Exercise	India	L Co, 3d Bn, 4th MAR	2 Jan 09 – 23 Jan 09
Cobra Gold			
Combined Interoperability	Thailand	3d MARDIV CLR-3 31st MEU	12 Jan 09 – 15 Mar 09
Key Resolve/Foal Eagle			
Bilateral Command Post and Field Exercise	Korea	Det, 3d MLG	16 Feb 09 – 27 Apr 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
Cope Tiger			
Combined Aviation Exercise	Thailand	Det, 1st MAW	2 Mar 09 – 21 Mar 09
Southern Canopy			
Bilateral Field Exercise	Philippines	Det, 3d Recon Bn	16 Mar 09 – 16 Apr 09
Balikatan			
Bi-Lateral Training	Philippines	Det, III MEF	16 Mar 09 – 30 Apr 09
Commando Sling			
Combined Aviation Exercise	Singapore	VMFA(AW)-224	7 Apr 09 – 25 Apr 09
Khaan Quest			
Combined Peacekeeping Interoperability	Mongolia	Det, CLR-37	22 Apr 09 – 22 May 09
Combined Peacekeeping Interoperability	Mongolia	Det, 3d AAV Bn Det, 3d Tank Bn	7 Aug 09 – 22 Aug 09
Ardent Blitz			
Bilateral Aviation Exercise	Thailand	Det, VMFA(AW)-224	11 May 09 – 22 May 09
LF Carat			
Series of Multi-national Exercises	Philippines, Brunei, Malaysia, Singapore, Thailand	CLR-35 1st Bn, 24th MAR 2d Bn, 24th MAR Det, 3d, 4th AAV Bn	20 May 09 – 1 Aug 09
Air Warrior			
Bilateral Aviation Exercise	Malaysia	Det, VMFA(AW)-225	9 Jun 09 – 7 Jul 09
Talisman Saber			
Bilateral Field Exercise	Australia	3d MLG Det, 7th Comm Bn	11 Jun 09 – 31 Aug 09
Ulchi Freedom Guardian			
Combined Command Post Exercise	Korea	Det, III MEF	16 Aug 09 – 27 Aug 09
Gold Eagle			
Bilateral Field Exercise	Australia	Det, MARFORPAC	1 Sep 09 – 3 Oct 09

Exercises and Theater Security Cooperation (cont.)

Exercise	Location	Unit	Dates
PHIBLEX			
Bilateral Amphibious Exercise	Philippines	Det, MWHS-1	16 Sep 09 – 30 Sep 09
Theater Security Cooperation			
Counterinsurgency Training	Thailand	Det, 1st Bn, 3d MAR	6 May 09 – 15 May 09
Leadership Development	Mongolia	Det, 9th ESBn	10 Jul 09 – 15 Jan 09
EOD Training	New Guinea	Det, 9th ESBn	27 Jul 09 – 28 Sep 09
Interoperability Training	Bangladesh	Det, CLR-35 Det, 9th ESBn	26 Jul 09 – 16 Aug 09
Interoperability Training	Indonesia	Det, MWSS-171	31 Jul 09 – 6 Aug 09
Interoperability Training	Cambodia	Det, MWSS-172	30 Jul 09 – 23 Aug 09
Counterinsurgency Training	Thailand	MSOT 16	17 Jan 09 – 15 May 09

U.S. Central Command

Operations and Contingencies

Mission	Location	Unit	Dates
Iraqi Freedom (Multinational Force - West (MNF-W))			
Counterinsurgency	Iraq	II MEF (Forward)	Continual Rotation
Iraqi Freedom (Multinational Security Transition Command – Iraq (MNSTC-I))			
Transition Training	Iraq	20 Military Transition Teams	Continual Rotation
Transition Training	Iraq	10 Border Transition Teams	Continual Rotation
Transition Training	Iraq	15 Provincial Police Transition Teams	Continual Rotation
Transition Training	Iraq	1 Provincial Joint Coordination Transition Team	Continual Rotation

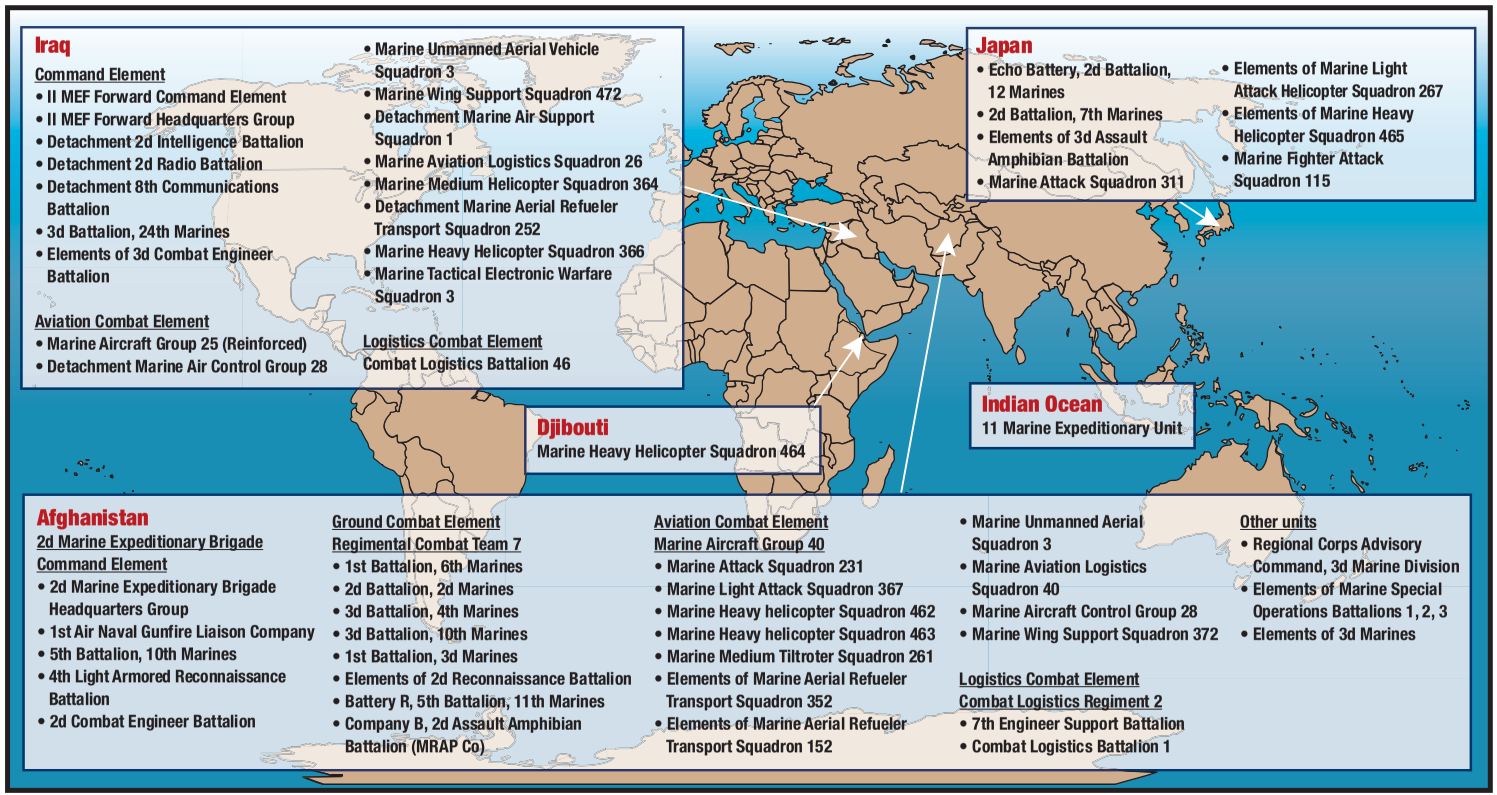
Operations and Contingencies (cont.)

Mission	Location	Unit	Dates
Iraqi Freedom and Enduring Freedom (Marine Forces Central Command)			
Electronic Warfare	Iraq	VMAQ-1	1 Aug 08 – 1 Feb 09
Electronic Warfare	Iraq	VMAQ-2	1 Oct 08 – 1 Apr 09
Electronic Warfare	Iraq	VMAQ-4	1 Apr 09 – 1 Oct 09
Electronic Warfare	Iraq	VMAQ-3	1 Aug 09 – 1 Jan 10
Electronic Warfare	Iraq	VMAQ-1	1 Oct 09 – 1 Mar 10
Enduring Freedom (Marine Expeditionary Brigade-Afghanistan)			
Counterinsurgency	Afghanistan	2d MEB	Continual Rotation
Enduring Freedom (CJSOTF-A)			
Counterinsurgency	Afghanistan	MSOT-5	28 May 08 – 1 Jan 09
Counterinsurgency	Afghanistan	MSOC I	1 Sep 08 – 30 Jul 09
Counterinsurgency	Afghanistan	MSOC D	4 Jan 09 – 30 Jul 09
Enduring Freedom (Combined Security Transition Command – Afghanistan)			
Transition Training	Afghanistan	1 Corps Embedded Training Team	Continual Rotation
Transition Training	Afghanistan	6 Battalion Embedded Training Team	Continual Rotation
Naval Security			
Physical Security	Bahrain	2 Plts, FAST Co	Continual Rotation

Marine Expeditionary Units

Mission	Location	Unit	Dates
26th MEU			
Security Cooperation Theater Reserve	EUCOM CENTCOM	BLT 2/6 HMM-264 CLB-26	29 Aug 08 – 30 Mar 09
31st MEU			
Security Cooperation Theater Reserve	PACOM	BLT 3/1 HMM-262 CLB-31	7 Jul 08 – 7 Jan 09
Security Cooperation Theater Reserve	PACOM	BLT 3/5 HMM-265 CLB-31	7 Jan 09 – 7 Jul 09
Security Cooperation Theater Reserve	PACOM	BLT 2/5 HMM-265 CLB-31	7 Jul 09 – 7 Jan 10
22d MEU			
Security Cooperation Theater Reserve	EUCOM CENTCOM	BLT 3/2 VMM-263 CLB-22	13 May 09 – 8 Dec 09
11th MEU			
Security Cooperation Theater Reserve	PACOM CENTCOM	BLT 2/4 HMM-166 CLB-11	8 Sep 09 – 3 Apr 09

Snapshot of Deployed Marine Forces (Dec 2009)



CHAPTER 5

MARINE CORPS ALMANAC

INTRODUCTION

This chapter provides a brief snapshot of the Marine Corps today. It includes a brief description of Marine Corps demographics, fiscal posture, and the age of primary equipment. As such it gives some insight into the resources that we fuse together to create the world's premier fighting force.

Active Duty Officer Accessions in Fiscal Year 2009

Type	Number
NROTC	218
Platoon Leader Course	383
Officer Candidate Course	473
Military Academy	272
Enlisted Commissioning Programs	228
Warrant Officer Program	264
Other	39
Total	1877

Active Duty Officer Age Distribution

Age	Number	Percent
<22	21	0.1%
22	398	1.9%
23	859	4.2%
24	1,175	5.7%
25	1,136	5.5%
26	1,123	5.4%
27	1,061	5.1%
28	1,056	5.1%
29	1,012	4.9%
30	979	4.7%
31-35	4,129	20.0%
36-40	4,418	21.4%
41+	3,272	15.9%
Total	20,639	100%

Active Duty Officer Grade Distribution

Rank	Number	Percent
Warrant Officers	1,964	9.5%
Second Lieutenant	3,278	15.9%
First Lieutenant	3,088	15.0%
Captain	5,913	28.6%
Major	3,757	18.2%
Lieutenant Colonel	1,868	9.1%
Colonel	686	3.3%
General Officers	85	0.4%
Total	20,639	100%

Active Duty Officer Occupational Field Distribution

Primary MOS Code	Description	Female Officer	Male Officer	Total Officer
01	Personnel & Administration	173	530	703
02	Intelligence	61	1,274	1,335
03	Infantry	0	2,376	2,376
04	Logistics	178	1,424	1,602
06	Communications	85	1,124	1,209
08	Field Artillery	0	928	928
09	Training	0	13	13
11	Utilities	3	41	44
13	Engineer	46	555	601
18	Tank & AAV	0	327	327
21	Ground Ordnance Maintenance	2	136	138
23	Ammunition & EOD	1	123	124
26	Signals Intelligence	2	39	41
28	Ground Electronics Maintenance	4	100	104
30	Supply Administration & Operations	77	622	699
31	Distribution Management	5	25	30
33	Food Service	3	36	39
34	Financial Management	38	297	335
35	Motor Transport	2	103	105
41	Marine Corps Community Services	3	8	11
43	Public Affairs	32	109	141
44	Legal Services	60	429	489
46	Combat Camera	3	17	20
48	Recruiting & Retention	0	17	17
55	Music	1	21	22
57	CBRN Defense	0	120	120
58	Military Police & Corrections	15	233	248
59	Electronics Maintenance	2	71	73
60	Aircraft Maintenance	19	383	402
63	Organizational Avionics Maint.	2	131	133
65	Aviation Ordnance	3	85	88
66	Aviation Logistics	26	245	271
68	Meteorology & Oceanography	1	31	32
70	Airfield Services	1	34	35
72	Air Control, Support & Anti-Air	55	560	615
73	Navigation Officer	0	13	13
75	Pilot/NFO	176	5,380	5,556
80	Miscellaneous Requirements	123	1,477	1,600
Total		1,202	19,437	20,639

Active Duty Officer Gender Distribution

	Number	Percent
Female	1,202	5.8%
Male	19,437	94.2%
Total	20,639	100%

Active Duty Officer Grade by Gender

Rank	# Male	% Male	# Female	% Female	Total
WO1	242	1.2%	13	1.1%	255
CWO2	774	4.0%	39	3.2%	813
CWO3	495	2.5%	37	3.1%	532
CWO4	256	1.3%	12	1.0%	268
CWO5	91	0.5%	5	0.4%	96
2ndLt	3,021	15.5%	257	21.4%	3,278
1stLt	2,859	14.7%	229	19.1%	3,088
Capt	5,508	28.3%	405	33.7%	5,913
Maj	3,613	18.6%	144	12.0%	3,757
LtCol	1,828	9.4%	40	3.3%	1,868
Col	667	3.4%	19	1.6%	686
General	83	0.4%	2	0.2%	85
Total	19,437		1,202		20,639

Active Duty Officer Marine Families

Civilian Spouses	Military Spouses	Guard/Reserve Spouses	Children/Other Dependents
13,094	807	59	22,033

Active Duty Officer Racial and Gender Distribution

Rank	Black Female	Black Male	Hispanic Female	Hispanic Male	White Female	White Male	Other Female	Other Male	Total
WO/CWO	21	243	20	178	62	1,335	3	102	1,964
2ndLt	13	116	19	140	200	2,518	25	247	3,278
1stLt	14	119	19	155	184	2,415	12	170	3,088
Capt	38	284	39	325	293	4,565	35	334	5,913
Maj	16	292	8	206	108	2,913	12	202	3,757
LtCol	3	88	2	56	30	1,615	5	69	1,868
Col	3	21	0	9	15	622	1	15	686
Gen	0	7	1	1	1	74	0	1	85
Total	108	1,170	108	1,070	893	16,057	93	1,140	20,639

Active and Reserve Enlisted Accessions

Active accessions	31,413
Reserve accessions	5,701
Total	37,114

Active Duty Enlisted Age Distribution

Age	Number	Percent
17	281	0.2%
18	8,122	4.5%
19	18,378	10.1%
20	22,257	12.2%
21	22,639	12.4%
22	19,911	10.9%
23	16,498	9.1%
24	13,219	7.3%
25	10,249	5.6%
26-30	27,394	15.0%
31-35	12,546	6.9%
36-40	7,447	4.1%
41+	3,206	1.8%
Total	182,147	100%

Active Duty Enlisted Grade Distribution

Rank	Number	Percent
Private	12,185	6.7%
Private First Class	23,280	12.8%
Lance Corporal	49,790	27.3%
Corporal	37,336	20.5%
Sergeant	29,505	16.2%
Staff Sergeant	15,777	8.7%
Gunnery Sergeant	8,869	4.9%
1stSgt/MSgt	3,814	2.1%
SgtMaj/MGySgt	1,591	0.9%
Total	182,147	100%

Active Duty Enlisted Occupational Field Distribution

Primary MOS Code	Description	Female Enlisted	Male Enlisted	Total Enlisted
01	Personnel & Administration	1,797	6,510	8,307
02	Intelligence	334	2,738	3,072
03	Infantry	0	36,816	36,816
04	Logistics	504	3,814	4,318
05	MAGTF Plans	39	353	392
06	Communications	1,186	13,804	14,990
08	Field Artillery	0	4,840	4,840
11	Utilities	235	2,796	3,031
13	Engineer	242	8,517	8,759
18	Tank & AAV	0	2,974	2,974
21	Ground Ordnance Maintenance	65	4,549	4,614
23	Ammunition & EOD	193	2,032	2,225
26	Signals Intelligence	307	2,577	2,884
28	Ground Electronics Maintenance	122	4,626	4,748
30	Supply Administration & Operations	1,444	6,116	7,560
31	Distribution Management	127	548	675
33	Food Service	361	2,216	2,577
34	Financial Management	208	1,219	1,427
35	Motor Transport	587	14,818	15,405
41	Marine Corps Community Services	13	125	138
43	Public Affairs	124	376	500
44	Legal Services	122	436	558
46	Combat Camera	108	465	573
48	Recruiting & Retention	76	343	419
55	Music	168	871	1,039
57	CBRN Defense	65	949	1,014
58	Military Police & Corrections	376	4,948	5,324
59	Electronics Maintenance	106	1,681	1,787
60	Aircraft Maintenance	421	4,898	5,319
61	Aircraft Maintenance (Rotary Wing)	212	6,326	6,538
62	Aircraft Maintenance (Fixed Wing)	130	4,277	4,407
63	Organizational Avionics Maint.	284	3,718	4,002
64	Intermediate Avionics Maintenance	228	2,737	2,965
65	Aviation Ordnance	164	2,723	2,887
66	Aviation Logistics	422	1,971	2,393
68	Meteorology & Oceanography	24	302	326
70	Airfield Services	214	2,273	2,487
72	Air Control, Support & Anti-Air	100	1,828	1,928
73	Navigation Officer	16	349	365
80	Miscellaneous Requirements	531	4,917	5,448
84	Career Recruiting	10	537	547
89	SgtMaj/1stSgt	75	1,494	1,569
Total		11,740	170,407	182,147

Active Duty Enlisted Gender Distribution

	Number	Percent
Female	11,740	6.4%
Male	170,407	93.6%
Total	182,147	100%

Active Duty Enlisted Grade by Gender

Rank	# Male	% Male	# Female	% Female	Total
Pvt	11,300	6.6%	885	7.5%	12,185
PFC	21,726	12.7%	1,554	13.2%	23,280
LCpl	46,815	27.5%	2,975	25.3%	49,790
Cpl	34,621	20.3%	2,715	23.1%	37,336
Sgt	27,559	16.2%	1,946	16.6%	29,505
SSgt	14,858	8.7%	919	7.8%	15,777
GySgt	8,374	4.9%	495	4.2%	8,869
1stSgt/MSgt	3,624	2.1%	190	1.6%	3,814
SgtMaj/MGySgt	1,530	0.9%	61	0.5%	1,591
Total	170,407		11,740		182,147

Active Duty Enlisted Marine Families

Civilian Spouses	Military Spouses	Guard/Reserve Spouses	Children/ Other Dependents
73,477	7,188	376	83,780

Active Duty Enlisted Racial and Gender Distribution

Rank	Black Female	Black Male	Hispanic Female	Hispanic Male	White Female	White Male	Other Female	Other Male	Total
Pvt	144	1,089	45	730	650	8,919	46	562	12,185
PFC	236	1,922	132	1,788	1,101	16,959	85	1,057	23,280
LCpl	468	3,754	428	4,871	1,826	35,346	253	2,844	49,790
Cpl	363	2,929	431	4,062	1,620	24,718	301	2,912	37,336
Sgt	335	3,203	379	3,972	995	17,948	237	2,436	29,505
SSgt	213	2,477	201	2,468	417	8,861	88	1,052	15,777
GySgt	132	1,508	96	1,249	216	5,033	51	584	8,869
1stSgt/MSgt	86	827	25	397	72	2,177	7	223	3,814
SgtMaj/MGySgt	25	435	10	132	24	898	2	65	1,591
Total	2,002	18,144	1,747	19,669	6,921	120,859	1,070	11,735	182,147

Selected Marine Corps Reserve Officer Age Distribution

Age	Number	Percent
<22	0	0.0%
22	4	0.1%
23	24	0.7%
24	37	1.0%
25	27	0.7%
26	28	0.8%
27	41	1.1%
28	61	1.7%
29	69	1.9%
30	78	2.1%
31-35	576	15.6%
36-40	1,009	27.3%
41-45	811	21.9%
46-50	585	15.8%
51-55	140	3.8%
56-60	16	0.4%
61+	2	0.1%
Total	3,696	100%

Selected Marine Corps Reserve Officer Grade Distribution

Rank	Number	Percent
Warrant Officers	333	9.0%
Second Lieutenant	173	4.7%
First Lieutenant	84	2.7%
Captain	633	17.1%
Major	1,039	28.1%
Lieutenant Colonel	1,064	28.8%
Colonel	360	9.7%
General Officers	10	0.8%
Total	3,696	100%

Selected Marine Corps Reserve Officer Occupational Field Distribution

Primary MOS Code	Description	Female Officer	Male Officer	Total Officer
01	Personnel & Administration	52	96	148
02	Intelligence	15	271	286
03	Infantry	0	473	473
04	Logistics	53	261	314
06	Communications	17	198	215
08	Field Artillery	0	180	180
09	Training	0	0	0
11	Utilities	0	11	11
13	Engineer	5	134	139
18	Tank and AAV	0	100	100
21	Ground Ordnance Maintenance	0	13	13
23	Ammunition & EOD	0	8	8
26	Signals Intelligence	0	3	3
28	Ground Electronics Maintenance	0	9	9
30	Supply Administration & Operations	17	137	154
31	Distribution Management	0	1	1
33	Food Service	0	1	1
34	Financial Management	7	28	35
35	Motor Transport	0	22	22
41	Marine Corps Community Services	0	0	0
43	Public Affairs	7	19	26
44	Legal Services	18	224	242
46	Combat Camera	0	1	1
57	CBRN Defense	1	30	31
58	Military Police & Corrections	3	43	46
59	Electronics Maintenance	0	2	2
60	Aircraft Maintenance	2	45	47
63	Organizational Avionics Maint.	0	6	6
65	Aviation Ordnance	0	9	9
66	Aviation Logistics	3	26	29
68	Meteorology & Oceanography	0	2	2
70	Airfield Services	0	7	7
72	Air Control, Support & Anti-Air	11	81	92
73	Navigation Officer	0	4	4
75	Pilot/NFO	16	621	637
80	Miscellaneous Requirements	16	387	403
Total		243	3,453	3,696

Selected Marine Corps Reserve Enlisted Age Distribution

Age	Number	Percent
18	531	1.5%
19	1,928	5.5%
20	2,882	8.3%
21	3,582	10.3%
22	3,747	10.8%
23	3,815	10.9%
24	3,727	10.7%
25	3,019	8.7%
26-30	7,068	20.3%
31-35	2,249	6.5%
36-40	1,252	3.6%
41-45	696	2.0%
46-50	252	0.7%
51-55	57	0.2%
56-60	8	0.02%
61+	1	0.01%
Total	34,814	100%

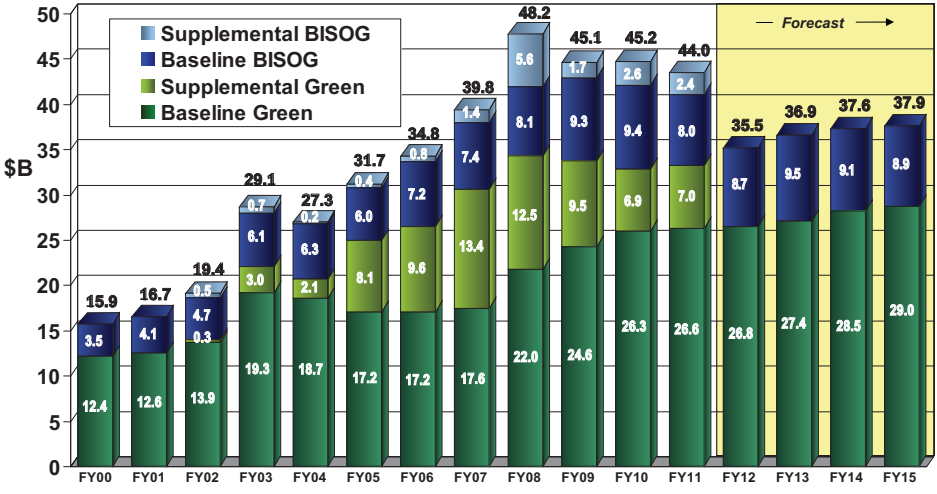
Selected Marine Corps Reserve Enlisted Grade Distribution

Rank	Number	Percent
Private	2,033	5.8%
Private First Class	3,531	10.1%
Lance Corporal	14,611	41.9%
Corporal	6,187	17.8%
Sergeant	4,573	13.1%
Staff Sergeant	1,981	5.7%
Gunnery Sergeant	1,230	3.5%
1stSgt/MSgt	450	1.3%
SgtMaj/MGySgt	218	0.6%
Total	34,814	100%

Selected Marine Corps Reserve Enlisted Occupational Field Distribution

Primary MOS Code	Description	Female Enlisted	Male Enlisted	Total Enlisted
01	Personnel & Administration	344	1,247	1,591
02	Intelligence	31	535	566
03	Infantry	0	7,927	7,927
04	Logistics	100	1,121	1,221
05	MAGTF Plans	2	47	49
06	Communications	153	2,913	3,066
08	Field Artillery	0	1,060	1,060
11	Utilities	73	636	709
13	Engineer	104	2,984	3,088
18	Tank & AAV	0	657	657
21	Ground Ordnance Maintenance	15	856	871
23	Ammunition & EOD	37	432	469
26	Signals Intelligence	9	35	44
28	Ground Electronics Maintenance	9	605	614
30	Supply Administration & Operations	217	1,244	1,461
31	Distribution Management	31	112	143
33	Food Service	53	495	548
34	Financial Management	6	25	31
35	Motor Transport	140	3,687	3,827
43	Public Affairs	4	22	26
44	Legal Services	6	12	18
46	Combat Camera	7	8	15
48	Recruiting & Retention	8	61	69
55	Music	2	1	3
57	CBRN Defense	7	205	212
58	Military Police & Corrections	30	801	831
59	Electronics Maintenance	3	93	96
60	Aircraft Maintenance	34	331	365
61	Aircraft Maintenance (Rotary Wing)	9	360	369
62	Aircraft Maintenance (Fixed Wing)	8	225	233
63	Organizational Avionics Maint.	14	184	198
64	Intermediate Avionics Maintenance	6	144	150
65	Aviation Ordnance	8	181	189
66	Aviation Logistics	35	200	235
68	Meteorology & Oceanography	6	46	52
70	Airfield Services	36	313	349
72	Air Control, Support & Anti-Air	22	161	183
73	Navigation Officer	0	31	31
80	Miscellaneous Requirements	74	2,925	2,999
84	Career Recruiting	2	40	42
89	SgtMaj/1stSgt	3	204	207
Total		1,648	33,166	34,814

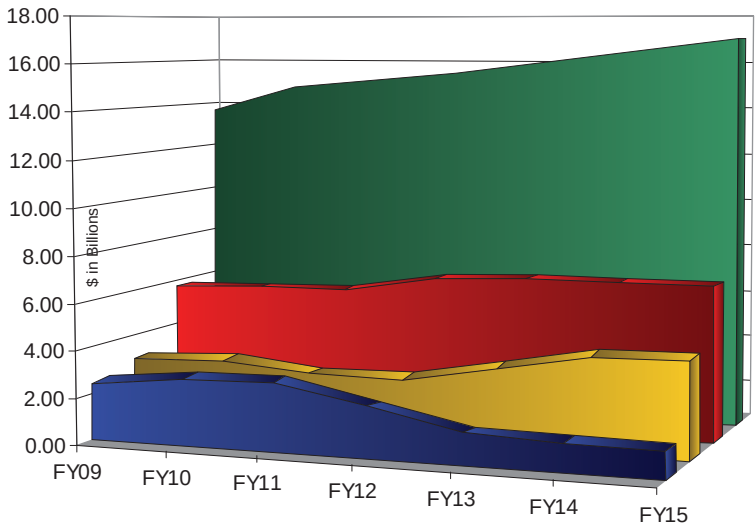
Marine Corps Fiscal Resource Overview



* FY09 (OCO) does not include $235M executed for American Recovery and Reinvestment Act projects
* FY09 OCO includes $1.38B for Mine Resistant Ambush Protected vehicles
* BISOG: Blue in Support of Green

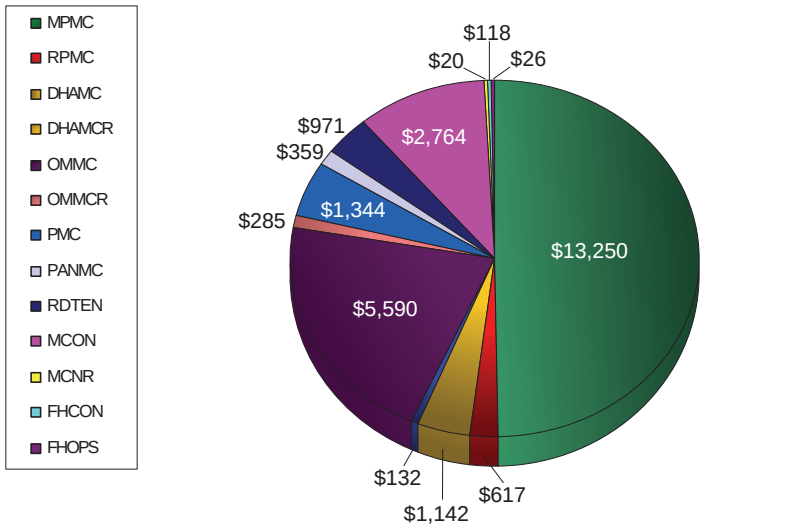
As of: 20 Jan 10

Marine Corps Fiscal Landscape



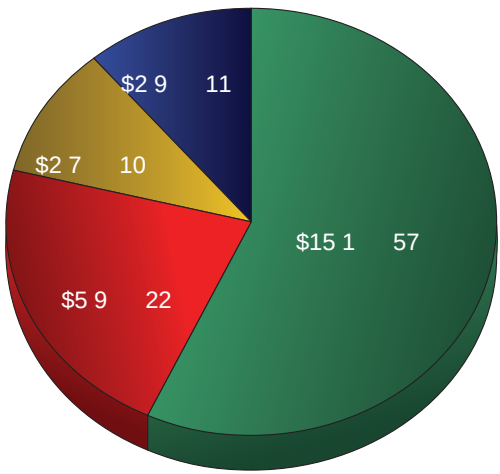
As of: 20 Jan 10

Marine Corps Fiscal Year 2011 Total Baseline TOA ($ in Million)



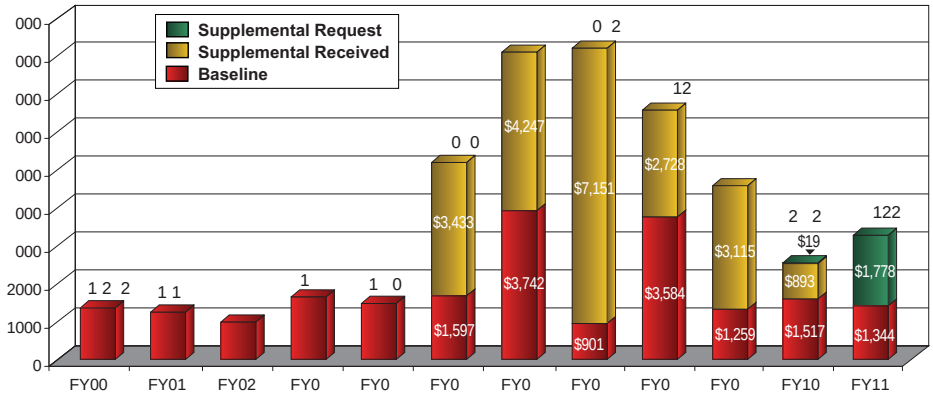
Last Updated: RPPC 20 Jan 10

Marine Corps Fiscal Year 2011 Appropriations

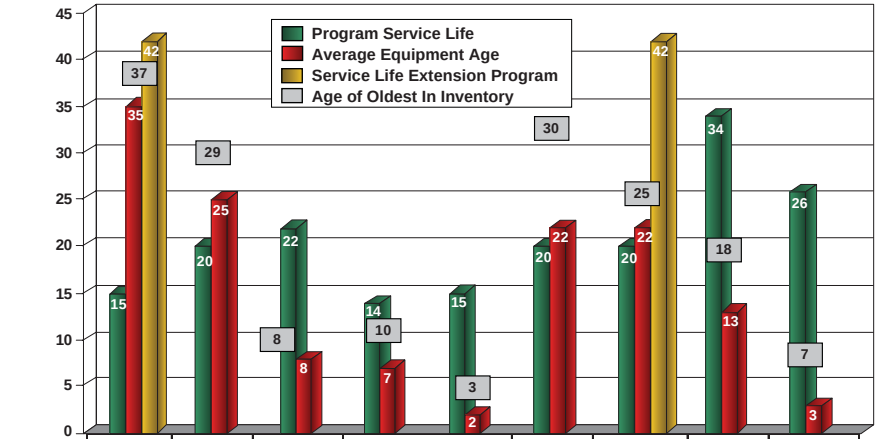


As o : 20 Jan 10

Marine Corps Procurement Summary ($ in Million)

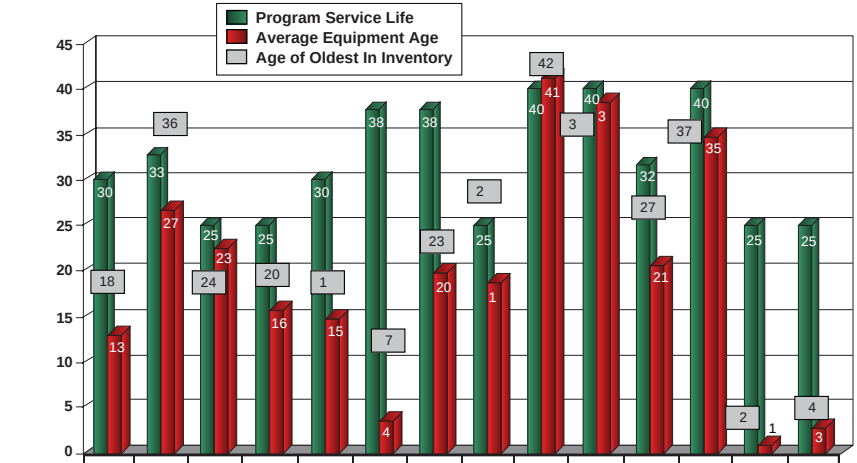


Marine Corps Selected Ground Equipment Age



	AAV	M198	MTVR	HMMWV		LVS	LAV	M1A1	HIMARS
Replacement	EFV	M777A2		HMMWV A2	ECV	LVSR	LAV A2		
IOC	2016	2005	2001	1999	2006	2009	2005	1991	2008
FOC	2026	2011	2010	2006	2012	2012	2009	1993	2010

Marine Corps Selected Aviation Equipment Age



	AV-8B	EA 6	FA 18A	FA 18C	FA 18	C 130	C 130T	AH 1W	CH 46E	CH 53	CH 53E	H 1	H 1	MV 22
Replacement	F 35	F 35	F 35	F 35	F 35	A	A	AH 1	MV 22	CH 53	CH 53	H 1	A	A
IOC	2016	2016	2016	2016	2016			2011	2007	2017	2017	2008	2008	2007
FOC	2026	2026	2026	2026	2026			2016	2018	2022	2022	2010	2010	2018

APPENDIX A OTHER SUPPORTING PROGRAMS

Marine Corps Embassy Security Group (MCESG)

Marine Security Guards (MSG) have been the frontline of defense for U.S. diplomatic missions and the Department of State for more than 210 years. The history of Marines supporting Department of State diplomatic missions dates to March 1799, and most famously with First Lieutenant Presley O'Bannon during the Barbary Pirate wars of 1805. A Memorandum of Agreement (MOA) between the Department of State and the Marine Corps was first signed in December 1948, formalizing the relationship between the two agencies. MSGs have continually exemplified themselves during numerous situations: embassy bombings in Lebanon, Kenya, and Tanzania; Al Qaeda terrorist attacks in Saudi Arabia; and averting an embassy bombing through vigilance in Pakistan, to name just a few. No matter what the mission, Marine Security Guards have always faced challenges and adversaries with steadfast courage, determination, and professionalism — always ready and true to their motto, "in every clime and place."

The MCESG is a global command that screens, trains, assigns, organizes, equips, and sustains Marines assigned for duty as MSGs at designated U.S. diplomatic and consular missions. The primary mission of a MSG is to provide internal security at these facilities to prevent compromise of classified information and equipment vital to national security.

Headquartered in Quantico, VA, the Commanding Officer of MCESG has more than 1,400 Marines assigned to the unit, supervising MSG detachments in 148 embassies and consulates in 133 countries, spanning 18 time zones. The group has nine regional commands that are commanded by a lieutenant colonel; four in Frankfurt, Germany that encompass Europe, Scandinavia, Eurasia, and North and West Africa; two in Ft. Lauderdale, FL that span the northern and southern parts of the Western Hemi-

sphere; one in the United Arab Emirates that includes the Middle East and South Asia; one in Bangkok, Thailand that covers East Asia and the Pacific region; and one in Pretoria, South Africa that is responsible for southern and eastern Africa. In 2010, MCESG has 42 posts that entitle Marines to hostile fire pay and 21 posts that qualify Marines for combat tax exclusion benefits.

MSGs attend a comprehensive six-week (eight weeks for detachment commanders) Department of State and Marine Corps school in Quantico, where they receive specialized training that prepares them to accomplish their primary mission of providing internal security. During their time in the program, MSGs will serve three separate 12-month assignments, and detachment commanders will serve two separate 18-month assignments at any one of the 148 embassies or consulates. Marine detachments range in size from one staff non-commissioned officer (SNCO) detachment commander and five MSGs, to two SNCOs and 22 MSGs, depending on the size of the embassy or consulate.

Marine Corps History Division

The mission of the History Division is research, writing, documenting, and tracking the history of the Marine Corps across the entire spectrum of its organizational existence. History Division historians, working within the Marine Corps University and in close coordination with the National Museum of the Marine Corps and the Library of the Marine Corps, are charged with the collection, writing, publication, and distribution of documents and accounts of permanent value to the history of the Corps. During 2009, the History Division moved into a permanent facility on the Marine Corps University (MCU) campus, at 3078 Upshur Avenue, Quantico, VA 22193.

The History Division engages in the research, writing, and editing of the official histories of the Marine Corps and maintains topical working files that cover four primary areas of interest to Marine Corps history (specific history subjects; biographical files on prominent Marines; unit files; and geographic area files where Marines have operated.) The division also conducts research and writes battle studies; deploys combat historians with operational units to collect and preserve primary source materials; conducts interviews with a wide variety of current and former Marines in support of the division's research and writing efforts; edits, designs, produces, prints, warehouses, and distributes products; compiles, edits, and publishes *Fortitudine*, the quarterly bulletin of the Marine Corps Historical Program; and carries out all functions of the Marine Corps University Press. Founded in 2008, the Marine Corps University Press seeks to further the vision, educational objectives, and curriculum of MCU through scholarly dialogue not offered in other forums. The Marine Corps University Press published the first issue of the *Marine Corps University Journal* in 2009 and will produce two issues in 2010. The journal features articles, interviews, and reviews on issues of strategy and international security.

In addition to the writing and publishing projects noted above, during 2010, History Division will expand the operations of MCU Press and *Marine Corps University Journal*. It will also maintain progress on a multi-year effort to scan and process key Reference Branch materials to make them available in a digital format. The History Division's website (www.history.usmc.mil) is continually being improved and expanded, as is the Marine Corps University Press website (www.tecom.usmc.mil/mcu/mcupress/).