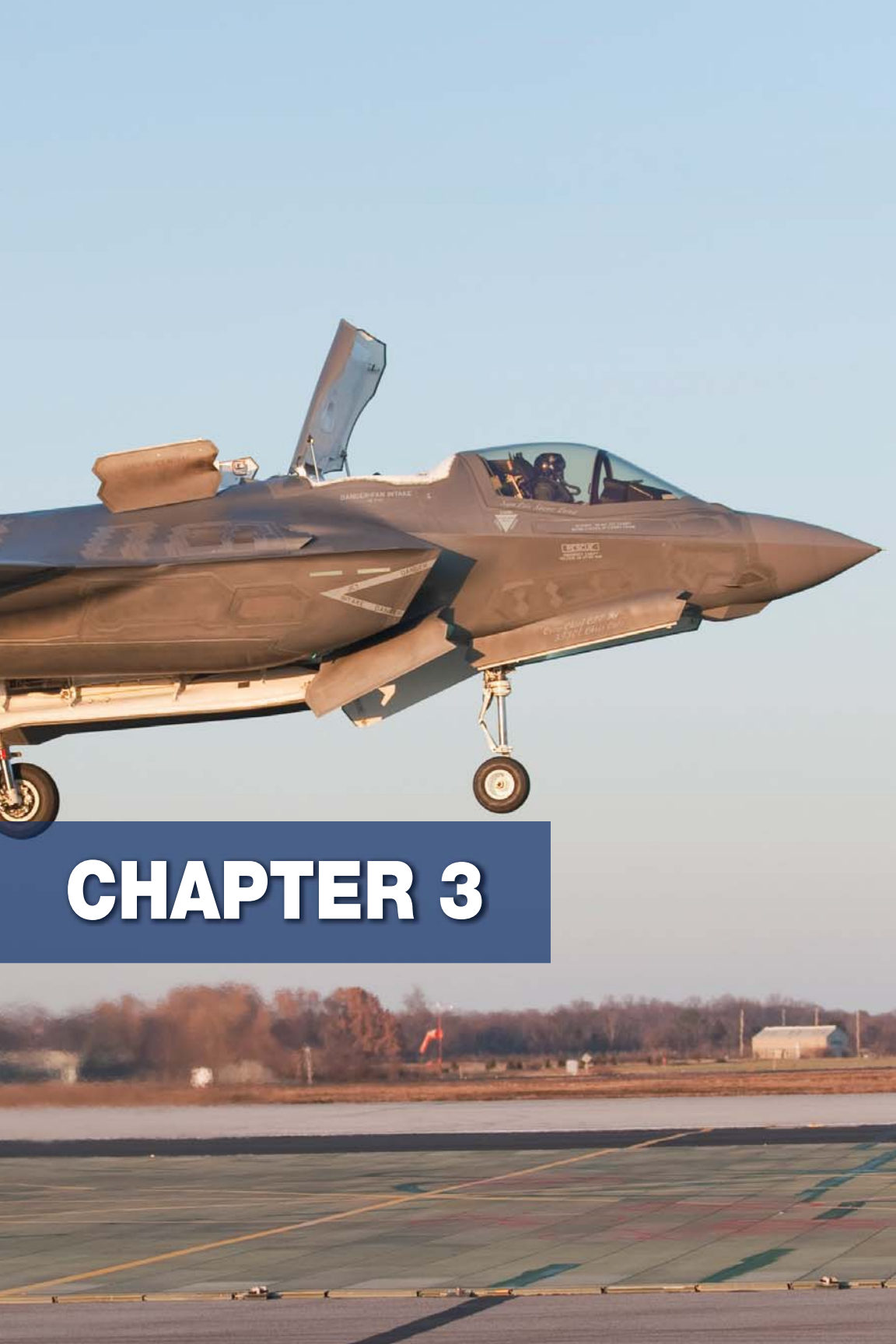


CHAPTER 3

PROGRAMS

INTRODUCTION

The Marine Corps' primary role in the 21st Century is to be the Nation's "expeditionary force-in-readiness" that provides combined-arms operating forces, including integrated aviation and logistical components, for service as part of naval, joint and combined forces world wide. Marine forces magnify the projection of U.S. forces, ensuring that they remain influential in peacetime, compelling in crisis, and decisive in war.

As we look ahead, we will strengthen the roots of a lighter, faster, hard-hitting, expeditionary, and sea-based Marine Corps that is reliant on agility, shock and surprise. Innovation and fiscal responsibility continue to be hallmarks of the Marine Corps. We continue to invest limited resources to restore combat capability and enhance our Marines' readiness at home and in overseas operating areas. We are constantly monitoring our total investment requirements against changing demands. In Marine Corps ground and aviation programs, for example, we continue to test, develop, and procure dual-use systems and employ emerging technology. Throughout, however, our focus remains on the individual Marine's ability to carry out the tasks at hand.

Chapter Three of the 2011 edition of Concepts and Programs provides information on Marine Corps programs of record and major end-item equipment, which will ensure that current and future Marines have what they need to accomplish the mission.

ACQUISITION CATEGORIES (ACAT)

The Department of Defense categorizes acquisition programs into several categories, generally based on their cost or testing requirements. This categorization is then used to identify oversight and approval requirements. A description of the most commonly discussed ACAT levels follows.

ACAT I: These are the largest acquisition programs and are also known as Major Defense Acquisition Programs (MDAP) or Major Automated Information Systems (MAIS). To achieve this level of designation, a program must exceed $365 million in research and development funding, exceed $2.190 billion in procurement funding or be designated as "Special Interest" by Congress. The Marine Corps leads the following ACAT I programs: the MV-22 Osprey Program, the Global Combat Support System, the Ground Aviation Task Oriented Radar, the Medium Tactical Vehicle Replacement, the Joint Light Tactical Vehicle, and the Common Aviation Command and Control System. The Marine Corps also participates in numerous joint ACAT I programs, including the Global Broadcast Service and the Joint Tactical Radio System. ACAT I programs have two subcategories: ACAT IC and ACAT ID.

ACAT IA: These are the largest automated information system (AIS) acquisition programs. There are several cost thresholds for this level, which include AIS programs with single-year funding, in all appropriations, in excess of $32 million; total program cost in excess of $126 million; or total life-cycle costs in excess of $378 million. ACAT IA programs have two subcategories: ACAT IAM and ACAT IAC.

ACAT II: These programs do not meet the threshold for ACAT I, but have research and development funding in excess of $140 million or procurement funding in excess of $660 million. They are also known as Major Systems. The Marine Corps funds one ACAT II program, the Logistics Vehicle Systems Replacement.

ACAT III: Programs that do not meet the cost threshold for ACAT I or II and involve combat capability are designated ACAT III or IV programs. Within the Marine Corps, the designation generally depends on the level of program management and oversight assigned by Commander, Marine Corps Systems Command. The Marine Corps in early 2011 manages more than 20 ACAT III programs, leads approximately 12 joint ACAT III programs, and participates in another 27 joint ACAT III programs. This level also includes less-than-major AIS programs.

ACAT IV: ACAT programs not otherwise designated ACAT I, IA, II or III are designated ACAT IV. ACAT IV programs have two subcategories: ACAT IV(T) programs, which require operational test and evaluation, and ACAT IV(M) programs, which do not. The Marine Corps manages nearly 90 such programs and leads or participates in more than 20 joint ACAT IV programs.

ACQUISITION PHASES AND TERMS

Material Solution Analysis Phase (Milestone A): This is the pre-system acquisition phase, during which initial concepts are refined and technical risk is reduced. Two major efforts may be undertaken in this phase. The first phase consists of short-term concept studies that refine and evaluate alternative solutions to the initial concept and provide a basis for assessing the relative merits of these alternatives. The second phase is an iterative discovery and development process designed to assess the viability of technologies, while simultaneously refining user requirements.

Engineering and Manufacturing Development (Milestone B): This is the phase in which a system is developed. Work in this phase includes reduction of integration and manufacturing risk, ensuring operational supportability, human systems engineering, design for the ability to produce, and demonstration of system integration, interoperability and utility.

Production and Deployment (Milestone C): This is the phase in which the operational capability that satisfies mission needs is ensured through operational test and evaluation. This evaluation determines a system's effectiveness, suitability, and survivability. The designated Milestone Decision Authority may decide to commit to production at Milestone C, either through low-rate initial production for major defense acquisition programs or full production or procurement for other systems.

A Non-Developmental Item (NDI): An NDI is any previously developed item of supply used exclusively for government purposes by a federal agency, a state or local government or a foreign government with which the United States has a mutual defense cooperation agreement. An NDI requires only minor modifications or modifications of the type customarily available in the commercial marketplace in order to meet the requirements of the Marine Corps.

Initial Operational Capability (IOC): In general, IOC is reached when some units and/or organizations in the force structure scheduled to receive a system have received it and have the ability to employ and maintain it. The specifics for any particular system IOC are defined in that system's Capability Development Document (CDD) and Capability Production Document (CPD).

Full Operational Capability (FOC): In general, FOC is attained when all units and/or organizations in the force structure scheduled to receive a system have received it and have the ability to employ and maintain it. The specifics for any particular system FOC are defined in that system's Capability Development Document (CDD) and Capability Production Document (CPD).

PART 1: EQUIPPING THE MARINE

INTRODUCTION

The "Individual Marine" is the heart and soul of the Nation's Marine Corps. The individual Marine is trained, educated, and equipped to operate across the broadest spectrum of missions and tasks — a "middleweight" fighter optimized for crisis response but equally capable in global engagement, irregular warfare or responding to larger threats worldwide.

Marine ground combat forces will be staffed with disciplined, highly trained, well-educated, superbly led Marines who thrive in uncertainty, exploit chaos, solve complex problems through simple means, and take prudent, ethical, and decisive action. These Marines will be armed with superior weapons and equipment that enhances shared understanding of the battlespace and enables rapid, coordinated action — all without overburdening the individual Marine or compromising our expeditionary agility.

While today's Marines are superbly operating in every clime and place, it is a leadership obligation to Marines, their families, and the Nation to be prepared for tomorrow with an eye to lightening the current fighting load. With the growth of the Marine Corps to 202,100 Marines, the individual Marine will remain the number-one priority. While a Marine's focus in the field is on excellence and mission accomplishment, the focus of Marine Corps programs is on the "tools" needed for operational success. America's Marines deserve nothing but the best that the Nation can afford.

INFANTRY AUTOMATIC RIFLE (IAR)

DESCRIPTION

The IAR program seeks to replace the current M249 Squad Automatic Weapon (SAW) in all infantry and light armored reconnaissance squads. The IAR is a non-developmental, 5.56mm automatic rifle that is lighter, more durable, more accurate, and more reliable than the M249 SAW.

OPERATIONAL IMPACT

Use of the automatic rifle will significantly enhance the automatic rifleman's maneuverability and displacement speed, while providing the ability to suppress or destroy targets of most immediate concern to the fire team.

PROGRAM STATUS

The IAR program entered the system development and demonstration phase during second quarter FY 2008 following a successful Milestone B decision. A successful Milestone C decision was achieved in fourth quarter FY 2009 and the program is currently in the production and deployment phase. The Heckler and Koch 416 was selected as the USMC IAR source. The IAR is currently undergoing a Limited User Ev aluation (LUE) with participation by three OEF active duty infantry battalions, a reserve infantry battalion, and an active duty Light Armored Reconnaissance battalion. Fielding in support of this LUE began in December 2010 and will be complete in April 2011. The LUE assessment collection plan will include a post-EMV assessment, a 100 day assessment, and a post deployment assessment. The results of these assessments will support a full fielding decision. Initial feedback from LUE infantry battalions currently in combat operations is very positive, and points to the advantages of the automatic rifleman now being a "true" automatic rifleman, rather than a light machine-gunner.

Procurement Profile:	FY 2011	FY 2012
Quantity:	458	0

Developer/Manufacturer:
Heckler and Koch, Newington, NH

MODULAR WEAPON SYSTEM (MWS)

DESCRIPTION

The M16A4 rifle and an M4 carbine are the two weapons that satisfy the capability requirements of the MWS program. An M1913 Rail Adapter System (RAS) replaces the upper-hand guards and incorporates a removable rear-carrying handle that were standard on M16A2 rifles. The RAS provides the capability to mount various accessories, including a modified M203 launching system, high-intensity flashlights, infrared laser illuminators, and optics. The MWS M4 carbine variant is selectively fielded to Marines whose billets or missions require the use of the shorter carbine.

OPERATIONAL IMPACT

The MWS significantly improves the ability to mount various accessories and will enhance accuracy, target detection, and engagement capabilities in day and night conditions.

PROGRAM STATUS

Fielding of the MWS began in FY2003. An increase in the Approved Acquisition Objective (AAO) due to complete replacement of M16A2 rifles Marine Corps-wide has extended fielding through FY2011. The AAO is now approximately 191,372 M16A4 rifles and approximately 83,344 M4 carbines.

Procurement Profile:	FY 2011	FY 2012
M16A4	19,103	5,000
M4	8,333	0

Developer/Manufacturer:
M4: Colt Manufacturing Company, Inc., Hartford, CT

M16A4: Fabrique National Military Industries, Columbia, SC

SEMI-AUTOMATIC SNIPER SYSTEM (SASS)

DESCRIPTION

The M110 Semi-Automatic Sniper System (SASS) is a 7.62mm semi-automatic, precision rifle that is capable of firing on enemy targets out to 800 meters with a precision of 1.3 minutes of angle. The M110 is fielded with the M8541A Scout Sniper Day Scope (SSDS) and is also compatible with the AN/PVS-27 Scout Sniper Mid-Range Night Sight (SSMRNS). The weapon design is based on that of the commercial Stoner SR-25 rifle. The SASS has been fielded within the U.S. Army since 2008, and an identical model, the MK11 MOD 2, has been fielded and in the U.S. Navy's Special Operations Forces (SEALs) since 2006. A similar model, the MK11 MOD1, has been fielded in the Marine Corps since 2006.

OPERATIONAL IMPACT

The M110 SASS will enable scout snipers to effectively engage enemy personnel with precision, conduct patrols and counter-sniper operations, and accurately engage hardened or materiel targets. The SASS will enhance the mobility of scout snipers by providing them with a shorter, lighter system than the current M40A5 Sniper Rifle. The SASS will also allow for rapid engagement of the enemy, which is critical in urban or restrictive environments in which multiple targets offer a very limited time to engage and may suddenly appear at close range. The semi-automatic capability of the SASS will augment the bolt-action M40A5 and will replace the M39 Enhanced Marksman Rifle (EMR) on a one-for-one basis.

PROGRAM STATUS

The Approved Acquisition Objective for the SASS is 1,588. Fielding of the M110 SASS will begin during First Quarter FY2011. All fielding will be conducted at home station; no in-theater fielding is planned. Fielding for the M110 will proceed in two phases. Phase I will consist of fielding to deploying-units Marine scout snipers, as well as to select schoolhouses where formal sniper and designated marksmen training takes place. Phase II will consist of fielding to fill deficiencies for deploying infantry battalions that were not fielded during Phase I, and to replace the M39 EMR. Fielding timelines for Phase II will be based on follow-on contract award for the SASS, which is anticipated during the Fourth Quarter FY2011.

Procurement Profile:	FY 2010	FY 2011
M-110 SASS	803	785

Developer/Manufacturer:
Knight's Armament Company, Titusville, FL

MULTI-SHOT GRENADE LAUNCHER

DESCRIPTION

The M-32A1 Multi-Shot Grenade Launcher (MSGL) is being fielded to replace the M-32 that was purchased under an Urgent Operational Needs Statement in support of OPERATION IRAQI FREEDOM. The M-32A1 is a hand-held, 40mm multi-shot grenade launcher with a six-round capacity fed by a revolving cylinder. This system affords the operator the ability to provide suppressive fires over a minimum area of 20x60 meters, and is accurate for point targets up to 150 meters and area targets up to 375 meters. A trained operator can fire 6 rounds in 3 seconds and sustain 18 rounds a minute.

OPERATIONAL IMPACT

The M-32A1began fielding in 2010 and will field across I MEF, II MEF, III MEF, and MARFORRES as an additive weapon to enhance small-unit suppressive-fires capabilities.

PROGRAM STATUS

Fielding of the M-32A1 MSGL began in the Third Quarter of 2010 and will continue through June 2011.

Procurement Profile:	FY 2011	FY 2012
M-32A1	1,659	0

Developer/Manufacturer:
Milkor USA, Inc., Tucson, AZ

SHOULDER LAUNCHED MULTIPURPOSE ASSAULT WEAPON (SMAW II)

DESCRIPTION

SMAW II is the material solution to the FOTS capability requirement defined in the capability development document. The SMAW II system will consist of a new launcher to replace the existing SMAW MK153 Mod 0 launcher, and a multi-purpose, fire-from-enclosure (FFE) encased round. The SMAW II launcher will be functionally and physically compatible with existing SMAW legacy rounds.

OPERATIONAL IMPACT

The SMAW II provides the Marine Corps Assault Team the ability to engage targets from inside an enclosure or in a confined space (e.g., alleyway), which significantly improves the team's tactical flexibility and survivability. The system provides a lighter, more maintainable, and more reliable launcher, which incorporates state-of-the art technology not resident in legacy system.

PROGRAM STATUS

Milestone B was achieved in August 2008 and Milestone C is scheduled for the Fourth Quarter FY2011. Initial Operational Capability is planned for the Fourth Quarter FY2012, with Full Operational Capability in the Fourth Quarter FY2016.

Procurement Profile:	FY 2011	FY 2012
FFE Rounds	750	2,500
Launchers	130	798

Developer/Manufacturer:
FFE Round: Nammo Talley, Incorporated, Mesa, AZ

Launcher: Raytheon Missiles Systems, Tucson, AZ

HANDHELD RADIOS FAMILY OF SYSTEMS (FOS)

DESCRIPTION

The Handheld Radios FoS has several non-developmental, tactical handheld, and amplified vehicular radio sets that provide reliable tactical communications, including a retransmission capability. The Marine Corps has a requirement for two handheld radios: the Integrated Intra Squad Radio (IISR) and the Tactical Handheld Radio (THHR).

The IISR is designed to provide small, lightweight, handheld tactical communications to infantry squads and fire teams to facilitate squad command and control, enabling squad members to communicate in tactical situations where hand and arm signals and voice communications are not practical. The IISR acts as a wireless intercom and possesses enough power to provide effective communications in open terrain, heavy vegetation, and urban environments. The IISR operates in the AM and FM bands of the 380-470 megahertz (MHz) frequency spectrum. The IISR is capable of both analog and digital operation.

The THHR is a secure handheld unit that supports the communications requirements of all elements of the MAGTF. The THHR operates in the AM and FM bands of the 30-512 MHz frequency spectrum, contain embedded communications security, and is interoperable with other radio systems and waveforms, such as Single-Channel Ground and Airborne Radio System (SINCGARS) and HAVEQUICK I/II, in the single-channel mode and frequency-hopping modes. In addition to the THHR, two vehicular amplification kits are included: the Dual Vehicle Adapter (DVA) and the Single Vehicle Adapter (SVA). The DVAs/SVAs are vehicular product lines that are fully interoperable with the Marine Corps' current inventory of combat net radios.

OPERATIONAL IMPACT

Legacy tactical handheld equipment within the Marine Corps exceeded its expected life span and was rarely used. As a result, the handheld units primarily consisted of locally purchased, commercially available radios that were not interoperable with Marine Corps combat net radios. The Handheld Radios FoS consolidates and exceeds legacy capabilities, lightens the combat load of individual Marines and small units, reduces tactical handheld radio operating costs, and provides line-of-sight radios into every tactical vehicle. The current versions of the Handheld Radios FoS have the expectations to remain

in the Marine Corps' inventory until the Joint Tactical Radio System (JTRS) solution reaches its full operational capability (FOC).

PROGRAM STATUS

The Handheld Radios FoS is in the post Milestone C phase of the acquisition process. All systems have been procured. Presently, seven end-items are currently in the inventory: AN/PRC-153 (IISR); AN/PRC-148 (THHR), with its associated AN/VRC- 111 DVA and AN/VRC-113 Small Form Factor -SVA; and the AN/PRC-152 (THHR), with its associated AN/VRC-110 DVA and AN/VRC-112 SVA. The Marine Corps' AAOs are for: 51,945 IISRs; 23,003 THHRs;10,246 DVAs; and 15,086 SVAs.

Developer/Manufacturer:
AN/PRC-152/AN/VRC-110/AN/VRC-112:
Harris Corporation, Inc., Rochester, NY

AN/PRC-153: Motorola, Columbia, MD

AN/PRC-148/AN/VRC-111/AN/VRC-113:
Thales Communications, Inc.,
Clarksburg, MD

MARINE ENHANCEMENT PROGRAM (MEP)

The Marine Corps stood up the Marine Enhancement Program (MEP) in 1989 in response to congressional guidance for the Corps to establish programs dedicated to improving the lethality, comfort and survivability of the individual Marine. The primary focus of the program is on low-cost, low-visibility materiel solutions that can be rapidly fielded and that typically do not compete well against larger, high-profile items in the Department of the Navy's budget.

The MEP thus ensures improvements for the individual Infantryman are identified and quickly transitioned into practical solutions. This goal is achieved through an accelerated acquisition process that takes advantage of commercially available technologies to provide lighter, more improved "infantry items" to the Marines as quickly as possible. Depending upon when the item is needed, its complexity, risk, and cost, it can take from 90 days to two years to test, modify as appropriate, procure and field the item to the Marine.

Items procured and fielded under the MEP seek to reduce the load, increase the survivability, enhance the safety and improve the lethality of the individual Marine Infantryman across the spectrum of operational environments. MEP systems are intended primarily for the Marine Infantryman within the Ground Combat Element. When applicable, MEP items have also transitioned to support other Military Occupational Specialties within the GCE (e.g., Combat Engineers and Artilleryman) and across the Marine Air Ground Task Force (e.g., Supply, Maintenance, Administration, and Ordnance). In recent years, the MEP has funded several critical programs, including: Combat Shotgun, Field Tarp, Flame-Resistant Organizational Gear, Modular Tactical Vest, Multi-Purpose Bayonet, Rifle Combat Optic, Individual Water Purification Block I (Miox Pen), Enhanced Hearing Protection, Grip Pod for the M16 and M203, Handheld Flashlight, Three Season Sleep System, Pocket Laser Range Finder, Next-Generation ILBE and the Improved Helmet Suspension/Retention System.

The MEP Working Group includes core representatives from Plans, Policies and Operations, Marine Corps Combat Development and Integration, and Marine Corps Systems Command. Nominations for the MEP initiatives come from Marines via the website, email and the Advocate, or through review of the U.S. Army's Soldiers Enhancement Program for capabilities matching a Marine Corps need. Nominated capabilities must focus on commercial-off-the-shelf or non-developmental items that can be executed quickly. The potential MEP initiatives for 2011 include: Battery Assist Device, Weapons Compensator, Hearing Armour (hearing protection), SPACES (solar portable power system), and the vehicle mounted battery charger.

MARINE EXPEDITIONARY RIFLE SQUAD (MERS)

The Marine Expeditionary Rifle Squad (MERS) is a program charged with applying an integrated approach to equipping a Marine rifle squad, our most fundamental warfighting unit. The focus of the program is to view the Marine rifle squad in a holistic manner — one in which the squad comprises a whole much more effective than the sum of its individual members. The integration and configuration management of all components that are worn, carried, and consumed by the squad will increase lethality, mobility, and flexibility of infantry forces. MERS is the steward of the Marine rifle squad's suite of equipment and works with all the program managers at Marine Corps Systems Command to optimize and integrate the rifle squad's equipment.

The program has founded the GRUNTWORKS Squad Integration Facility. The facility provides a venue to engineer, evaluate, and try the capabilities and limitations of all equipment in development and under consideration for procurement that will be delivered to the infantry squad. This dynamic facility uses a human factors lab, equipment prototyping and modification workshop, a mobility platform integration area, and an infantry immersive environment focused on equipment evaluation in a foreign environment to accomplish equipment modernization and integration initiatives. Human factors and ergonomics are applied to the physical integration of the infantry squad's equipment. The physiological and performance impacts of fielding new equipment create sets of trade-offs between weight and volume management, comfort, usability, simplicity, lethality, survivability, mobility, sustainment, and training given that it must perform in combat in any clime and place. MERS will highlight these trade offs and refine solutions that incorporate the capabilities of the Marine rifle squad as an integrated system.

MERS works closely with the MERS Capabilities Integration Officer and the HQMC Plans Policy and Operations MERS Infantry Advocate. The MERS triad has established an Integrated Infantry Working Group in order to ensure that the operating forces are equipped with optimal solutions. Infantry Battalion surveys are continuously conducted in theater and post deployment in order

to identify trends and issues with infantry equipment.

Integration efforts during 2011 include:

- Integration of the Plate Carrier and Improved Modular Tactical Vest with the components worn on the torso
- Improvements in the weight distribution and load carriage methodology within the squad using metrics for mobility
- Infantry weapon and optic ergonomic enhancement
- C2/Situational Awareness integration and information systems for small unit leaders
- Research into efficient power generation and power/data distribution on the Marine
- Integration and anthropometry of the Marine in mobility platforms under development such as Joint Light Tactical Vehicle and Marine Personnel Carrier
- Integration of the various unique items carried in the billet positions within the squad

The MERS Program Office is also the Enhanced Company Operations (ECO) Equipping Coordinator for Marine Corps Systems Command. MERS also coordinates the R&D efforts for the long-term objective of distributed operations. Infantry Battalions have been equipped with ECO equipment and is listed in the infantry battalions' table of equipment. The program office conducts equipment and software upgrades as well as refresher training for the ECO computers and associated hardware. The robust C2 package combined with appropriate training will empower the non-commissioned officers at the fire team and squad level and increase the battalion's capabilities across all warfighting functions.

INFANTRY COMBAT EQUIPMENT (ICE)

Program Manager ICE continues to pursue technological advancements in personal protective equipment and load bearing equipment by fielding, sustaining, and assessing clothing and equipment while anticipating the needs of the operating forces. Fully recognizing the trade-off between weight, protection level, fatigue, and movement restriction, the program office is providing Marines the latest in personal protective equipment and load bearing equipment, such as the Improved Modular Tactical Vest (IMTV), Plate Carrier (PC), Full Spectrum Battle Equipment (FSBE), Flame Resistant Organizational Gear (FROG), Mountain Cold Weather Clothing Program (MCWCP), the Three-Season Sleep System (3S), the USMC Pack and the Pistol Holster.

The requirements of combat operations have forced the rapid evolution of personal protective systems. In February 2007, the Marine Corps transitioned the Modular Tactical Vest for troops deployed in overseas contingencies. The MTV provided greater comfort by incorporating state of-the-art load carriage techniques that better distributed the combat load over the torso and hips of the Marine. In response to MTV design deficiencies identified during field use, the program office has developed the Improved MTV (IMTV). The IMTV increases weapons handling, improves weapon stock weld, reduces complexity and reduces the overall system weight as compared to the MTV. It is planned for initial fielding in July 2011.

The Scalable Plate Carrier (SPC) was issued as an additional ballistic vest for Marines deploying to Afghanistan starting in 2008. The SPC was not as a replacement for the MTV but rather an option for commanders to address mission and threat requirements that were different than Iraq. The SPC allows for greater individual maneuverability, agility, and mobility with reduced thermal stress in hot mountainous environments when compared to the MTV. The SPC offers the same level of ballistic protection as the MTV but reduces overall weight by reducing soft armor fragmentation protection. The PC is planned to replace the SPC starting in late 2011. The PC is a government developed design that improves shoulder comfort, improves load carriage, and provides an emergency release capability when compared to the SPC.

The FSBE provides ballistic protection, short duration underwater breathing capability, flotation, and limited load carriage to meet the specific mission profiles required by the Marine Corps reconnaissance community, fleet anti-terrorism security teams, Marine Expeditionary Unit helicopter assault companies and Marine Special Operations Command.

In addition to body armor, PM ICE also procures the current Light Weight Helmet (LWH) and Modular Integrated Tactical Helmet (MICH) that have been used by Marines during overseas contingencies since 2004. Starting in 2009, PM ICE has been the lead in a joint Army and Navy team developing the Enhanced Combat Helmet (ECH). Developmental testing has shown the ECH has resistance to small arms penetration and superior fragmentation protection at the same weight of presently fielded helmets. If First Article Testing is successful, the ECH may become the joint services common ballistic helmet. Fielding is planned to start in late 2011.

In February 2007, the Marine Corps began fielding FROG to all deployed Marines. This lifesaving ensemble of flame-resistant clothing items (gloves, balaclava, long-sleeved undershirt, combat shirt, combat trouser, and Inclement Weather Combat Shirt (IWCS) is designed to mitigate potential injuries to Marines from flash flame exposure often experienced in Improvised Explosive Device (IED) incidents. The Marine Corps continues development of FROG in order to increase comfort, improve durability and improve flame resistant properties.

The MCWCP includes items required to increase the individual Marine's mobility, survivability and sustainability in a mountainous, cold weather environment, such as Afghanistan. The MCWCP consists of a Lightweight Exposure Suit (Parka and Trousers); Extreme Cold Weather Parka, Trouser, and Bootie; Snow Camouflage Parka, Trousers and Pack Cover; Extreme Cold Weather Mitten System (a Mitten Shell with Liner and Light Duty Flame Resistant Glove Insert); Windpro® Fleece Jacket; FR Silkweight Underwear and FR Midweight Underwear.

In September 2008, the Marine Corps identified a need to provide a smaller and lighter sleep system to replace the Modular Sleep System. The 3S leverages technological advances in textiles and insulation to increase environmental protection while reducing the weight and volume as compared with the previous sleeping bag. The 3S, when incorporated with the layered clothing system Marines already carry, provides 15 degrees of greater protection, is one pound lighter, and is eight percent smaller by volume than the patrol bag in the Modular Sleep System (MSS). The 3S is designed to be used at 20 degrees with lightweight insulating layers and as low as 10 degrees when wearing all of the recommended insulating clothing layers provided with the MCWCP. Providing a greater temperature range in which Marines can operate than the MSS, the 3S increases the mobility and survivability of the individual Marine. The 3S is currently being fielded.

PM ICE also provides high-quality clothing, including boots, in order to enhance current and future Marine Corps readiness. The Hot Weather (HW) and Temperate Weather (TW) versions of the Rugged All Terrain (RAT) boot provide Marines comfortable, stable, and durable footwear for every climb and place in altitudes from 0-6,000 feet of elevation. The

RAT boot provides greater abrasion resistance in the toe and heel areas through an extra layer of impregnated leather. This abrasion resistance gives the Marine the ability to kick steps in loose dirt, snow and ice without destroying the integrity of the boot. Additionally, the RAT boot can perform on slopes from 0-90 degrees and in a variety of terrain types to include, but not limited to, rock, loose soil, mud, snow and alpine ice. Due to these properties and its stitch down construction, the RAT boot provides excellent durability, better traction, and greater stability in any environment.

PM ICE is presently developing the USMC Pack for fielding in 2012. The USMC Pack incorporates an external composite frame and is designed to better integrate with body armor systems than the presently fielded system. The USMC Pack will provide Marines a durable lightweight and fully salable means to transport ammunition, weapons, equipment and clothing into battle.

PM ICE intends to procure and field a new pistol holster in 2012. The USMC Holster will consist of a modular composite design that will allow better weapons carriage and more rapid weapons transition from primary to secondary weapon. The USMC Holster will allow Marines to more rapidly engage targets from the holster and implement current combat pistol marksmanship technique.

TACTICAL HYDROGRAPHIC SURVEY EQUIPMENT (THSE)

DESCRIPTION

As part of the Underwater Reconnaissance Capability (URC) program, the Tactical Hydrographic Survey Equipment (THSE) is a handheld, underwater charting system with GPS oriented/located known-point underwater mapping capability that can be employed with the Diver Propulsion Device (DPD). It integrates sonar and computer technology to provide combat swimmers and combatant dive pairs the capability to conduct tactical submerged hydrographic reconnaissance and electronically chart bottom conditions of the seaward approach to potential amphibious landing beaches in support of the Marine Air Ground Task Force (MAGTF).

OPERATIONAL IMPACT

The program's efforts will produce a piece of equipment that navigates subsurface with the accuracy of surface GPS for prescribed periods of time, maps the ocean bottom, and records the collected data to produce a graphic representation of that ocean bottom for use by landing force commanders. Typical mission profiles will consist of tactical subsurface movements of Marine combatant diver teams from insertion points at sea to pre-programmed survey areas and follow on recovery from pre-programmed extraction points also at sea.

PROGRAM STATUS

The THSE is in the engineering and manufacturing development phase of the acquisition life cycle. During FY2008-2010, Marine Corps Systems Command in conjunction with the Defense Advanced Research Projects Agency conducted technology development and testing to determine the ability of the device to meet all Marine Corps performance requirements. Following successful technology development a transition of program authority is expected during the first quarter of FY2011. Field User Evaluations are scheduled for second and fourth quarters of FY2011. Milestone C is planned for fourth quarter FY2011, and with procurement and fielding decisions planned for first and second quarters of FY2012 respectively. Procurement and fielding will continue through FY2015.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	206

Developer/Manufacturer:
To be determined.

DAY OPTICS SYSTEMS

DESCRIPTION

The AN/PVQ-31A (for the M16A4) and AN/PVQ-31B (for the M4) rifle combat optic (RCO) are the cornerstones of the day optics program. The RCO is a fixed 4X optical aiming sight designed for use with the rifles configured with the MIL-STD-1913 Rail Adapter System. It attaches to the rail to provide the user a targeting tool to engage distant daylight and near low-lit targets with increased identification certainty.

The SU-260/P machine gun day optic (MDO) is a fixed 6X optical aiming sight designed for use with the M240B machinegun. The optic provides a targeting tool for engaging targets out to 1,250 meters. The sight has a fiber-optic reticle illumination system supplemented by a tritium lamp. The reticle provides a stadia-rangefinder and both vertical and horizontal mil scales. The optic is issued with a miniature reflex for targeting close or rapidly moving targets.

The SU-258/PVQ squad day optic (SDO) is a fixed 3.5X optical aiming sight designed use with all 5.56mm systems. The SDO is currently the optical sight for the M249 squad automatic weapon and the M27 infantry automatic rifle. The optic provides a targeting tool for engaging targets out to 1,000 meters. The sight has a fiber optic reticle illumination system supplemented by a tritium lamp. The reticle provides a stadia-rangefinder and both vertical and horizontal mil scales. The reticle has aiming points for either carbine or rifle barrel length weapons. The optic is issued with a miniature reflex for targeting close or rapidly moving targets.

The Heavy Machinegun Sight System (HMGSS) is a suite of components being procured in response to an Urgent Statement of Need in support of OEF. The HMGSS includes a ballistic extended rail mount (BERM), a heavy day optic (HDO) and a reflex sight. When used in conjunction with legacy laser pointers and clip on night vision devices, the HMGSS provides a machine gunner with a complete aiming system for ground or vehicle mounted M2 or Mk19 heavy machineguns.

OPERATIONAL IMPACT

The RCO provides enhanced target identification and hit probability for the M4 and M16A4 rifle out to 800 meters. It incorporates dual illumination technology using a fiber optic light source for daytime illumination and tritium for

night and low-light use. This allows the operator to keep both eyes open while engaging targets and maintain maximum situational awareness.

The MDO provides enhanced target identification and hit probability for the M240B out to 1,250 meters. The 6X magnification power extends the range at which machine gunners can detect and acquire targets. The refined ballistic drops provide aiming points in 50-meter increments, which increase accuracy and probability of effects on target. The MDO central aiming points are illumined by a fiber optic and supplemented by a tritium lamp for night and low-light use. The MDO is provided with a miniature reflex sight for engaging close and rapidly moving targets. The MDO additionally provides a mounting rail for mounting legacy laser aiming devices.

The SDO provides enhanced target identification and hit probability for the M249, M27 out to 1,000 meters. The 3.5X magnification power extends the range at which automatic riflemen can detect and acquire targets. The SDO central aiming points are illumined by a fiber optic and supplemented by a tritium lamp for night and low-light use. The SDO is additionally provided with a miniature reflex sight for engaging close and rapidly moving targets.

The HMGSS provides enhanced long range target identification and hit probability for the M2 .50 caliber heavy machinegun and Mk19 Mod3 automatic grenade launcher out to the maximum graduated ranges of both systems. The reflex sight provides a rapid aiming point for close and or moving targets while the HDO provides a precise aiming point and 8X magnification for more deliberate or long-range scenarios requiring increased identification certainty. The extended rail of the BERM additionally allows a machine gunner to use either image intensified or thermal devices to detect and acquire targets in night or low-light conditions. The BERM also allows for the gunner to directly view the optic while the weapon is being fired by absorbing weapon recoil travel. The suite increases engagement ranges and speeds effects on target by automatically correcting for range and drift of both .50-caliber and 40mm trajectories.

PROGRAM STATUS

A total of 217,441 RCOs have been procured through FY 2010 with deliveries ending in FY 2011. The MDO and SDO contracts were awarded in FY 2009 for procurement of 10,933 MDOs and 15,178 SDOs with deliveries continuing through 2012.

Procurement Profile:	FY 2011	FY 2012
AN/PVQ-31A:	0	0
AN/PVQ-31B:	2,607	0
AN/PEQ-16A:	610	0
SU-260/P:	5,200	5,075
SU-258/PVQ:	7,200	5,307
HMGSS	728	0

Developer/Manufacturer:
RCO/SDO/MDO: Trijicon Industries, Detroit, MI

THERMAL OPTICS SYSTEMS

DESCRIPTION

The Squad Thermal System (STS) will be both a weapon mounted clip-on thermal sight that can be used in conjunction with the AN/PVQ-31A/B Rifle Combat Optic (RCO) and a lightweight, handheld thermal imager. This system will have an integrated Class3B infrared laser pointer with two modes of operation: training (eye-safe), and tactical (non-eye safe). The IR laser will be compatible with existing Image Intensifier (I2) night optics. The STS will be configured with an open-system architecture design to permit pre-planned product improvement (P3I) insertions. These may include the following: the integration of a higher performing micro bolometer, an adjustable laser that can be bore sighted to the weapon, and optics components that permit the use of the STS in conjunction with other Marine Corps sights, such as the Squad Day Optic (SDO) and Medium Day Optic (MDO). The total weigh of the STS will not exceed 21 ounces in either operational configuration, weapon-mounted or hand held.

OPERATIONAL IMPACT

The Squad Thermal System will better enable Squad leaders, Fire Team Leaders, Machine Gun Section Leaders, and Reconnaissance Team Leaders to detect and recognize potential targets, danger areas, and items of interest in all lighting conditions. The integrated laser point will allow Marines to designate potential targets to other team members equipped with I2 devices to improve situational awareness and to control organic weapon fire. At the present time, the Marines have to carry two separate pieces of gear to satisfy the requirement for thermal imaging in weapon-mounted and handheld configurations. The desire is to field a single device that is well suited for use in either configuration, thereby reducing load and logistics burden.

PROGRAM STATUS

The STS in currently in the Development Phase with a planned IOC in the Third Quarter FY2013. FOC is planned in the Fourth Quarter FY2014.

Developer/Manufacturer:
To be determined.

LASER TARGETING AND ILLUMINATION SYSTEMS

DESCRIPTION

The AN/PEQ-15 advanced target pointer illumination aiming light (ATPIAL) and the AN/PEQ-16A mini integrated pointer illuminator module (MIPIM) are Class 3b laser devices that provide a highly collimated beam of infrared energy for weapon aiming and an adjustable focus infrared beam for target illumination. The AN/PEQ-16A also has a white light illuminator that provides target identification and illumination without the use of night vision devices.

OPERATIONAL IMPACT

The AN/ PEQ-16A provide increased accuracy for every Marine by providing a laser aiming capability and the ability to illuminate targets in low light and night conditions when using a night vision device.

PROGRAM STATUS

The procurement of 610 PEQ-16As in FY 2011 will fulfill all AAO quantities for laser systems.

Procurement Profile:	FY 2011	FY 2012
AN/PEQ-16A:	610	0

Developer/Manufacturer:
Insight Technology, Inc., Londonderry, NH

PART 2: COMMAND AND CONTROL

INTRODUCTION

The Marine Corps Command and Control (C2) Initial Capabilities Document (ICD) approved by the Joint Requirements Oversight Council in February 2008, and the Marine Corps Functional Concept for Command and Control, approved in 2009, incorporate joint integrating concepts and C2 mandates and articulate our goal of delivering end-to-end, fully integrated, cross-functional capability to include forward deployed and reach back functions. It emphasizes that command and control must be leader centric and network enabled, and that individual Marines understand their commander's intent and can carry out complex operations. The C2 ICD, Functional Concept and the Marine Corps Information Enterprise strategy detail in this part will enable MAGTF commanders to exercise effective command and control and bring together all of the warfighting functions into an effective fighting force. In addition, these programs support the ability of the MAGTFs to function in an integrated naval environment and participate in or lead joint and multinational operations.

MARINE CORPS INFORMATION ENTERPRISE (MCIENT) STRATEGY

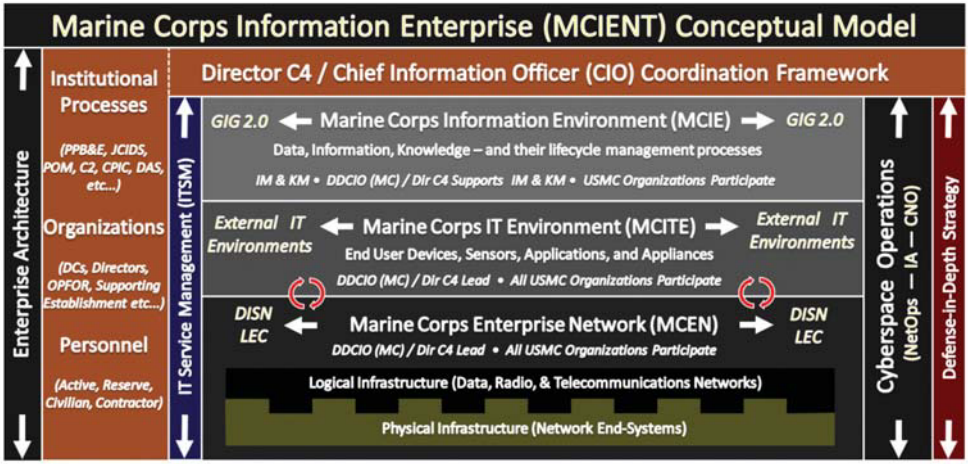


Figure 3.1. MCIENT Conceptual Model

The Marine Corps Information Enterprise (MCIENT) Strategy prepares the Marine Corps for the future by establishing a vision for the Marine Corps as an *Information Enterprise* and by providing the objectives necessary for enhancing Service core competencies, defeating adversaries, supporting allies and mission partners, and performing the Marine Corps' legislated role.

VISION

The Marine Corps will continue to meet the challenges of a complex security environment, fight and win the Nation's battles, and endure as the Nation's expeditionary force in readiness. To ensure these imperatives, the Marine Corps must evolve into a ***Knowledge-based Force*** that leverages seamless enterprise capabilities across the spectrum of conflict in order to enhance decision making, achieve knowledge superiority, and gain tactical, operational, and strategic advantage over the Nation's adversaries.

STRATEGY

Achieving the vision requires the development of improved mobile, seamless, and secure communications and IT services across the Information Enterprise. Communications and services with these characteristics facilitate collaboration, coordinated actions, and instant or near real-time access to mission-critical data, information, and knowledge. To evolve the Corps into a Knowledge-based Force that achieves decision and execution superiority in traditional warfighting domains, Cyberspace, and business mission areas, investments in core MCIENT components are crucial. Investments for the Marine Corps Enterprise Network (MCEN) and the Marine Corps Information Technology Environment (MCITE) will focus on ensuring their ability to more effectively deliver, display, and manage data, information, and knowledge across the enterprise.

Furthermore, investments will emphasize better ways for rapidly infusing emerging technologies that enhance Command and Control (C2), extend the reach of forward-deployed forces, and improve

organizational and tactical agility. Investments will be planned from the perspective of ensuring bandwidth limited Marines and mission partners have improved access to mission critical data, information, and knowledge, wherever and whenever needed, and in an understandable format. Enterprise investments will also focus on workforce education, training, and professionalization programs. Such initiatives will be designed to ensure Marines, Civilian Marines, and support contractors know how to use improved enterprise governance tools, policies, and technological capabilities to create advantage in a dynamic strategic landscape.

Finally, the Marine Corps Information Enterprise will embody an institutional sense and practice for leveraging, protecting, and defending data, information, and knowledge as decisive strategic assets. To this end, the Marine Corps will infuse within its Cyberspace capabilities an institutionalized Information Assurance (IA) practice for ensuring data, information, and knowledge yield decisive advantage to the Corps and the Nation, and not the enemy.

CHARACTERISTICS

Focused on Deployed Forces: The location of MAGTF or other USMC forward-deployed forces in the future will vary depending upon the operating context, mission, and the extent to which Marines interact with internal and external organizations and individual mission partners. In the future, the Marine Corps will leverage multi-capable MAGTFs with Marines who are trained to perform a multitude of tasks in varying operational contexts and at differing levels of unit aggregation. MCIENT components will support these Marines by facilitating the development and fielding of mobile, seamless, and secure communications and IT services that provide robust collaboration tools and instant or near real-time access to mission critical data, information, and knowledge.

Attuned to the Strategic Environment: The MCIENT is attuned to the strategic environment by facilitating the development and fielding of tools that help Marines, Civilian Marines, and contractors better assess, adapt to, and influence changes in a dynamic strategic landscape. Attuning the enterprise to the strategic environment requires a special emphasis on leveraging intelligence, including cyber-intelligence, for proactive and reactive mitigation of cyber attacks and threats, and for successful execution across the full spectrum operations.

Grounded in Effective Governance: Effective governance implies a mechanism for ensuring that Marine Corps Information Enterprise capabilities are developed and fielded in support of Marine Corps goals and objectives. The MCIENT model provides a framework for integrating common functional requirements, applicable to MCIENT components, into Information Enterprise objectives. The *Marine Corps Information Enterprise Strategy* is thus the mechanism for leveraging the MCIENT model to influence enterprise Force Development priorities. The MCIENT strategy provides the Marine Corps' single, top level Information Enterprise objectives used to inform future capability decisions, supporting plans, concepts, and programming initiatives.

Secure and Seamless Marine Corps Information Environment: MCIENT core components enhance the ability for

Marines and their mission partners to access the information they need in austere and distributed environments, whenever they need it. The Director C4 / DDCIO (MC) will coordinate with other organizations to define the implementations required for ensuring information is visible, accessible, discoverable, and understandable in a way consistent with the effective use of constrained bandwidth. Additionally, through programs of record and Marine Corps IT regionalization practices, information will be distributed to deployed forces and staged as far forward as required to ensure availability in a bandwidth-constrained environment. Structured and unstructured data spanning all functional areas will support the distribution, forward staging, and sharing among all command echelons. Finally, creating a secure and seamless Information Environment requires an Enterprise Architecture (EA) that integrates all Marine Corps components who manage segment architectures within the MCIENT (e.g., Battlespace Awareness and Force Application).

Institutionalized Information Assurance: Institutionalizing Information Assurance across the Marine Corps means that Marines and systems embody a sense and capability for valuing *information as a strategic asset*. It requires a total force approach to ensure that IA skill sets and proficiencies are codified and ingrained through doctrine, policy, education, and training. IA ensures the confidentiality, integrity, availability, authenticity, and non-repudiation of enterprise information and the information system on which the information resides. By continuing to professionalize the IA workforce the Marine Corps can better leverage enterprise information to help negotiate and succeed in a dynamic security environment. Additionally, the Marine Corps will continue to use existing development processes and continue to refine certification and accreditation processes to ensure IA requirements are identified and included early in a systems design project. Continual refinement and incorporation of emerging policies and guidance from the IA and acquisitions communities will better ensure IA controls are inherent to the system, thus providing superior and transparent threat protection across a wide range of missions.

MCIENT CORE COMPONENTS

Marine Corps Enterprise Network: At the foundation of the MCIENT model is the Marine Corps Enterprise Network. The MCEN is defined as the Marine Corps' network-of-networks and approved interconnected network segments, which comprise people, processes, logical and physical infrastructure, architecture, topology, and Cyberspace Operations.

The MCEN is characterized at a minimum to include: (1) Programs of Record (PORs) that provide network services to forward-deployed forces (e.g., DDSM, LMST, Phoenix, and SWAN) operating in the USMC.mil namespace and in USMC routable IP addresses; and (2) Operations and Maintenance (O&M) functions that provision data transportation, enterprise IT, network services, and boundary defense (e.g., MCEITS, NGEN, and SONIC).

Additionally, the MCEN's physical infrastructure is analogous to the Defense Information System Network (DISN) and the Local Exchange Carrier (LEC), as it enables the Marine Corps Information Technology Environment and the flow of data, information, and knowledge across the Marine Corps Information Environ-

ment. The MCEN interfaces with external networks to provide information and resource sharing, as well as access to external services.

Finally, when end user devices, sensors, applications, and appliances are connected to the MCEN, they become part of the network through a relationship established at an interface point. Interfaces, as indicated by the circular arrows connecting the MCEN and MCITE in the figure, represent an important feature of the model that must be managed effectively to ensure component layer integration. Each MCIENT component layer contributes to the next higher layer by providing services through an approved interface.

Marine Corps Information Technology Environment: Figure 3.1 depicts the MCEN and MCITE as inextricably linked, but distinguishes the MCITE layer as that which encompasses all Marine Corps-owned and -operated IT — including those technologies inherent and not inherent to the MCEN's core operation. Information technologies directly associated with operating the MCEN's logical and physical infrastructure are always considered an inherent part of the MCEN's core operation, and are always considered a permanent portion of the MCITE.

However, Information technologies not associated with the MCEN's core operation (e.g., Smart Phones, DDS-M, GCSS-MC, AFATDS, GCCS, IOSV3, IOW, JTCW, CAC2S, JBCP, and all end systems) are considered ancillary and are therefore only considered a part of the MCEN when they are connected to it through an approved interface. Like inherent MCEN technologies, ancillary technologies are always considered a permanent portion of the MCITE. The circular arrows in Figure 3.1 indicate the inextricable but often ephemeral link between the MCEN and the MCITE. This distinction and relationship is important to note in order to highlight the intent of the MCITE layer as an encompassing construct around all Marine Corps IT, whether inherent to the MCEN or ancillary to it. This distinction is essential for policy matters and architecture initiatives.

Marine Corps Information Environment: The MCIE represents the broad domain for all forms of communication. It comprises Marine Corps data, information, knowledge, and the management processes for ensuring their effective distribution and use across the Marine Corps and with mission partners. The MCIE often leverages, but does not always depend upon technology and communications systems to facilitate the flow of data, information, and knowledge across the enterprise. Therefore, the MCIE represents a broad domain within which all communication takes place (e.g., explicit and implicit communications). Within the MCIE data, information, and knowledge is shared, situational understanding is achieved, and decisions are made.

MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS)

DESCRIPTION

MCEITS is an enterprise Information Technology capability that delivers value to Marine Corps decision makers, application owners, information managers, and network users. MCEITS provides enterprise IT services contained within a world-class application and data hosting environment with supporting communications, computing network, information assurance, and enterprise services infrastructure.

The MCEITS service management design contains industry best practices and will utilize IT Infrastructure Library (ITIL) based principles and methods to provide capabilities to meet Operating Forces and Supporting Establishment requirements. These best practices will ensure that MCEITS provides the Marine Corps a strategic net-centric capability, and also ensures that MCEITS becomes the core enabler of the computing and communications capabilities of the MAGTF C2 framework and of the Marine Corps' C2 System of Systems (SoS). The MCEITS Software Integration Environment (SIE) will provide Marine Corps application owners and developers with a formal application development and application inclusion process. The SIE application inclusion process will provide documented, defined, repeatable processes that contain guidance for the successful management of the development, test, and integration of new and modified software services into the MCEITS Operations environment.

The MCEITS Operations environment will provide the common infrastructure necessary to allow the Marine Corps to achieve greater effectiveness and efficiency in the delivery and support of its IT service operations relating to data management, application support, and information sharing. MCEITS Operations will coordinate and carry out proactive and reactive key activities relating to the support of all the data, applications, and services in its environment including, utility computing, dedicated server provisioning, capacity utilization, operations scheduling, event and incident monitoring and resolution, problem management, system backup and restoration, and continuity of operations planning.

OPERATIONAL IMPACT

MCEITS will enable access to Marine Corps enterprise data, information, applications and services; it will also provide a collaborative information-sharing environment across the business and warfighter domains. MCEITS will deliver an enterprise platform with a common hardware, software, and facilities infrastructure required to support managed hosting services, non-managed hosting services or provisioned hosting services for Marine Corps application owners. MCEITS will deliver and manage its hosting services at agreed levels by providing Service Level Agreements (SLAs) to Marine Corps application owners. It will provide Marine Corps users with access to the core enterprise services necessary to enable rapid collaboration, efficient discovery, and access to trusted data and information through an enterprise portal framework. It will provide users quick access to all hosted applications and core enterprise services by enabling single sign-on capabilities. MCEITS will deliver an agile IT infrastructure that can easily adapt to evolving Marine Corps software, hardware, data, services, and management requirements while providing an enterprise view into the IT environment that facilitates greater reuse of existing IT assets.

PROGRAM STATUS

Block I FOC is scheduled for FY13 and Block II FOC for FY15.

GLOBAL COMMAND AND CONTROL SYSTEM (GCCS)

DESCRIPTION

The GCCS uses joint system-of-record software to provide select Command and Control (C2) capabilities throughout the Marine Corps to plan, execute, and manage operations, including unit readiness reporting of personnel, equipment, and training. Planning, executing, and managing operations is done via the Joint Operations Planning and Execution System (JOPES), and unit readiness reporting is done via the Global Status of Resources and Training System (GSORTS). GCCS is fielded at the regiment level and above.

OPERATIONAL IMPACT

GCCS is the joint C2 system that provides operational commanders with the information and capability to plan, execute, and manage operations as well as the capability to report unit readiness.

PROGRAM STATUS

The Approved Acquisition Object of 194 servers and 320 clients has been achieved, and GCCS is in the sustainment phase of its acquisition life cycle, having reached Milestone C in 1997. GCCS will continue to sustain software upgrades across the Future Years Defense Plan as well as Marine Corps-wide hardware upgrades of GCCS servers and clients. GCCS executed a client refresh during FY2010.

Procurement Profile:	FY 2011	FY 2012
Quantity:	194	0

Developer/Manufacturer:
Defense Information Systems Agency (DISA), Falls Church, VA

GLOBAL COMBAT SUPPORT SYSTEM – MARINE CORPS (GCSS-MC)

DESCRIPTION

GCSS-MC is the Marine Corps' state of the art, web-enabled and deployable logistics system that provides the backbone for all logistics information exchanges required to effectively request, distribute, and maintain critical battlefield equipments and supplies. The system is being fielded as an Acquisition Category (ACAT IAM) program also known as a Major Automated Information Systems (MAIS). To achieve this level of designation, a program must exceed $365 million in research and development funding in procurement funding and be designated as "Special Interest" by Congress. GCSS-MC is designed to initially replace three legacy based systems; Marine Corps Integrated Maintenance Management (MIMMS, Asset Tracking for Logistics and Supply (ATLASS) and Supported Activities Supply System (SASSY). As the primary technology enabler for the Marine Corps Logistics Modernization strategy, the core of GCSS-MC is a modern, commercial-off-the-shelf enterprise resource planning software package based on Oracle's 11i e-Business Suite. With a sizable Business Process Reengineering effort GCSS-MC enables the warfighter to effectively operate GCSS-MC both in garrison and while deployed with logistics chain reach-back from the battlefield.

OPERATIONAL IMPACT

Marines in combat required a rapid and flexible logistics capability responsive to the 21st century battlefield. GCSS-MC is the answer to this critical operational imperative. Providing a deployable, single point of entry for all logistics requirements, GCSS-MC introduces cutting edge enabling technology in support of logistics operations while facilitating the modernization of aged logistics processes and procedures. Key to sustaining deployed logistics operations is the GCSS-MC ability to enhance asset visibility and supplies accountability. Critical performance objectives include reduced logistics response and customer wait time while decreasing dependence on forward-positioned stocks. Commanders will benefit from GCSS-MC due to increased Logistics Chain intelligence vital to effective command and control functions. Supply, Maintenance, and Distribution Marines will experience increased efficiency in planning, accountability and expedited delivery of supplies and equipment to supported units.

GCSS-MC Block 1 contains two distinct releases and will ride on the existing Marine Corps Tactical Data network. Release 1.1 provides for basic Supply, Maintenance, and Asset Tracking functionalities, and Release 1.2 centers on the system's ability to operate in an expeditionary logistics environment

in support of the MAGTF by providing a cross-domain solution (i.e., NIPR and SIPR exchange of information) and data synchronization (e.g., continued operation in a disconnected environment) for deployed units. GCSS-MC is tied to GCSS-J within the GCSS Family of Systems (FoS) to enable a DoD system of record enabling joint logistics command and control (C2).

PROGRAM STATUS

Block I / Increment I: Release 1.1 successfully completed Field User Evaluation (FUE) and Initial Operational Testing and Evaluation in FY2010 and is being delivered in the III Marine Expeditionary Force Area of Operations which include Okinawa, Mainland Japan and Hawaii. The Release 1.1 Total Force Implementation phase in the Continental United States delivers GCSS-MC to all remaining operational and supporting establishment organizations starting 3rd Quarter FY11 and runs through January, 2013. The deployable Release 1.2 capability is in Systems Integration, Development, Testing and Evaluation (SIDT&E II) at Camp Pendleton and San Diego, California, as well as Quantico, Virginia and plans additional Developmental Testing and Operational Testing (DT/OT) in April/May 2011. The program anticipates beginning to field Release 1.2 beginning in FY-12. Metrics collection is a strong component of GCSS-MC. Initial operations in Okinawa indicate significant improvements in Order Ship Time (OST), Repair Cycle Time (RCT), and Time to First Status (TTFS). The full impact of these logistics enhancements will take time to assess and interpret although initial data indicate positives results.

Block II / Increment II: Current projections include an essential major Oracle COTS software upgrade to the e-business suite and key system enhancements for Asset Logistics Management that include enhanced wholesale functionality to include Warehouse Management solutions, Item Unique Identification (IUID), and other force multiplier capabilities to processes and reporting. Other improvements may include In-Transit Visibility and Standard Financial Information Structure (SFIS) accounting, along with continuous process improvements to Supply Chain Management and data warehousing capability. Estimates for Increment II are based upon continued coordination with the Warfighter and are planned to build on Block I capability.

Post Deployment System Support Program (PDSS): PDSS supports GCSS-MC fielding by providing all necessary maintenance and sustainment activities for systems in production/sustainment and the remaining systems as they migrate from development into sustainment. These activities include support of the GCSS-MC PDSS Model which is based on implementing Information Technology Service Management (ITSM) within the Information Technology Infrastructure.

Developer/Manufacturer:
Oracle USA, Inc, Redwood Shores, CA

DEFENSE READINESS REPORTING SYSTEM – MARINE CORPS (DRRS-MC)

DESCRIPTION

The Defense Readiness Reporting System – Marine Corps (DRRS-MC) is the next generation of Marine Corps authoritative data systems for force readiness reporting. The Marine Corps began development of DRRS-MC in April 2009 to function as part of the DRRS Enterprise (DRRS-E), a collection of approved hardware and software components culminating in a web-based user interface. Similar to DRRS-Army (DRRS-A) and DRRS-Navy, DRRS-MC merges resource-based (personnel, equipment supply, equipment condition, training) and Mission Essential Task (MET)-based reporting to simplify the readiness reporting process. Since the U.S. Army and Marine Corps' organizational structure, data structure, and supporting business rules are most closely aligned of the Services, the Marine Corps leveraged the Army's investment in DRRS-A to develop DRRS-MC. DRRS-MC has been a relatively low cost, high dividend investment that has had a positive impact on the ability of Marine commanders to assess the operational readiness of their units.

OPERATIONAL IMPACT

DRRS-MC allows Marine commanders to accurately and efficiently report the readiness of their units to HQMC. The goal is to simplify and expedite the reporting process by using streamlined information flow that begins and ends with an intuitive web-based interface.

Commanders report readiness data via the NetUSR-MC (Unit Status Reporting-Marine Corps) input tool, which enables their units to register and report readiness status to the DRRS-Enterprise. NetUSR allows commanders to report unit readiness in terms of: resources; ability to conduct mission essential tasks (METs); and overall readiness to execute a unit's core (designed) mission as well as its assigned mission.

Working in conjunction with NetUSR-MC will be the Marine Readiness Management Output Tool (MRMOT), which is in development in early 2011. The MRMOT output tool will allow users to view current and historical readiness information using graphical user interface screens to efficiently display readiness information. MRMOT is designed as an executive information system that begins at a summary level and allows a "drill-down" view capability to access detailed readiness information. The MRMOT database will contain information that is extracted and formulated from the DRRS-MC database.

PROGRAM STATUS

The Marine Corps went live with NetUSR-MC on 30 April 2010. Marines at the battalion and squadron level now have a new, more user-friendly web-based input tool to complete required readiness reports. The MRMOT output tool was fielded at the end of FY2010 and enables MEFs, MARFORs, and HQMC to assess force readiness with greater clarity.

The USMC will continue to transition reporting units from GCCS Status of Operational Readiness and Training System (GSORTS) Readiness Assessment System-Input Tool (RAS-IT) to DRRS-MC (NetUSR-MC). DRSS-MC currently interfaces with GSORTS to provide USMC readiness data via Uniform Services Message Text Format (USMTF) message to the Joint community. Eventually, GSORTS will stand-down and DRRS-MC will serve as the single readiness reporting system within the DRRS-E for Marine units.

COMMON AVIATION COMMAND AND CONTROL SYSTEM (CAC2S)

DESCRIPTION

CAC2S will provide a complete and coordinated modernization of Marine Air Command and Control System (MACCS) equipment. CAC2S will eliminate current dissimilar systems and provide the Marine Air Ground Task Force Aviation Combat Element (MAGTF ACE) with the necessary hardware, software, and facilities to effectively command, control, and coordinate air operations integrated with naval, joint, and/or combined command and control (C2) units. CAC2S will comprise standardized modular and scalable tactical facilities, hardware, and software that will significantly increase battlefield mobility and reduce the physical size and logistical footprint of the MACCS.

OPERATIONAL IMPACT

CAC2S is an Acquisition Category IAC, Major Information Automated System program. It has been restructured with an approved revised acquisition strategy to ensure the CAC2S program fields ready and proven technologies at the earliest opportunity. To achieve this goal, Increment I requirements will be achieved in two phases.

Phase 1 accommodates rapid fielding of operationally relevant capabilities to include mobility, situational awareness, tactical communications, information dissemination, and operational flexibility that will establish the baseline CAC2S capabilities. This phase will upgrade fielded MACCS equipment with mature, ready technologies and will establish an initial product baseline Processing and Display Subsystem (PDS) and Communications Subsystem (CS). Naval Surface Warfare Center, Crane, IN, will oversee the integration and upgrades of the previously developed and fielded systems (AN/TSQ-239 COC and AN/MRQ-12) into CAC2S PDS and CS.

Phase 2 has been structured to accommodate the integration of technologies necessary for the CAC2S Sensor Data Subsystem (SDS) to meet remaining ACE battle management and command and control requirements. This phase will build upon the capabilities of the Phase 1 product baseline by integrating the SDS with the Phase 1 PDS and CS, thereby fully meeting CAC2S Increment I requirements.

PROGRAM STATUS

CAC2S requirements were originally documented in an Operational Requirements Document in February 2003. The CAC2S requirements were further refined in a Capability Production Document and approved by the JROC in September 2007. CAC2S was designated an ACAT 1AC program on 26 December 2007 by the Assistant Secretary of Defense. Milestone C was achieved November 2010 and Limited Deployment Capability (LDC) is expected in 4th Quarter FY11. The AAO for CAC2S is 50 PDS, 39 SDS, and 75 CS subsystems.

THEATER BATTLE MANAGEMENT CORE SYSTEMS (TBMCS)

DESCRIPTION

TBMCS is an air war-planning tool mandated by the Chairman, Joint Chiefs of Staff for the generation, dissemination, and execution of the Air Tasking Order/ Airspace Control Order (ATO/ACO). The host system resides with the Aviation Command Element in the Tactical Air Command Center (TACC,) with remote systems located throughout the Marine Air Ground Task Force to enable dynamic mission updates.

OPERATIONAL IMPACT

TBMCS is the principal aviation command and control (C2) tool within Marine aviation C2 systems and the Theater Air Ground System for the development and execution of the ATO. It is a key system that supports ATO planning and development and provides the automated tools necessary to generate, disseminate and execute the ATO/ACO in joint, coalition, and Marine Corps-only contingencies.

PROGRAM STATUS

TBMCS version 1.1.3 is now fielded throughout the operating forces and the joint community. Discussions between joint, Marine Corps, and other service representatives are developing a way ahead for sustainment of version 1.1.3 and the eventual transition to a new system.

TACTICAL COMBAT OPERATIONS (TCO) SYSTEM

DESCRIPTION

TCO is the principal tool within the Marine Corps Air Ground Task Force (MAGTF) for situational awareness through distribution of the Common Tactical Picture (CTP) and is the primary entry point for the Common Operational Picture (COP). TCO provides commanders at all echelons with the ability to map and display friendly and enemy locations, as well as plan, develop, display, and transmit overlays of intended movement. TCO also provides commanders in both garrison and tactical operations the ability to receive, fuse, store, develop, transmit, and display commanders' critical information requirements (CCIR).

OPERATIONAL IMPACT

Without TCO, the Marine Corps would not have the ability to participate in any form of situational awareness, either internal to the Marine Corps or within the joint community. TCO is the tool for the Marine Corps CTP and entry point for the joint-level COP.

PROGRAM STATUS

TCO is in a sustainment phase of its acquisition life cycle, having received an Milestone Decision Authority (MDA) approved Milestone (MS) C in 1995 and reached Initial Operational Capability (IOC) in during the First Quarter FY1995 and Full Operational Capability (FOC) during the Third Quarter FY1996. TCOs last Acquisition Decision Memorandum (ADM) was for a version 4.1.1.1 Fielding Decision. TCO will continue to sustain software upgrades across the Future Year Defense Plan (FDYP) as well as Marine Corps-wide hardware upgrade of both the Intelligence Operations Server version 1 (IOS(V)1) backend server and the Intelligence Operations Workstation version 1 (IOW(V)1) frontend client in FY2011.

Developer/Manufacturer:
Defense Information Systems Agency (DISA), Falls Church, VA

COMPOSITE TRACKING NETWORK (CTN)

DESCRIPTION

CTN is the adaptation of the U.S. Navy Cooperative Engagement Capability (CEC) to satisfy Marine Corps expeditionary maneuver warfare requirements. The network will provide Marine Corps aviation command and control (C2) agencies capability to distribute composite tracking and fire control data to Marine Corps and Navy C2 and weapons systems. CTN is an essential element in the Marine Corps future Command, Control, Communications, Computers and Intelligence (C4I) architecture.

OPERATIONAL IMPACT

CTN will provide the Marine Air Ground Task Force commander a sensor-netting solution that will help defend friendly forces from aircraft and cruise missiles. Near real-time correlation of local and remote sensor data, via the CEC/CTN network, will provide the MAGTF commander precise and accurate target-quality track data and will improve situational awareness and battlespace coverage.

PROGRAM STATUS

CTN has completed AN/TPS-59 Long-Range Radar interface development. The software interface development for Aviation C2 and Ground/Aviation Task Oriented Radar (G/ATOR) are underway. Milestone C was achieved in the first quarter FY2009, and the software began Low Rate Initial Production in early 2010. Initial Operational Capability is scheduled for the Third Quarter FY2011. The Approved Acquisition Objective (AAO) is 27 systems: 10 initial procurement and 17 dependent upon funding and required manpower adjustments.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
Naval Surface Warfare Center,
Crane Division, Crane, IN

COMBAT OPERATIONS CENTER (COC)

DESCRIPTION

The COC is a deployable, self-contained, centralized facility that provides shared command and control / situational awareness (C2/SA) functionalities in a collaborative environment. The system is designed to enhance the tactical common operational picture (COP) for all levels of the MAGTF. It is a commercial-off-the- shelf, total turn-key, integrated hardware solution using unit-provided radios, legacy and re-hosted tactical data applications, and unit-available prime movers to provide mobility, modularity, and scalability for each assigned mission. In early 2011 there were three production COC system variants — the (V)2, (V)3, and (V)4 — scaled to the major subordinate command; the regiment / group; and the battalion / squadron respectively. COC supports the MAGTF throughout the full range of military operations, including C2, intelligence, maneuver, fires, force protection, and logistics.

The COC program office is upgrading the existing COCs to introduce an enhanced, integrated software baseline supporting warfighter needs. The COC Model G will introduce a service-oriented infrastructure (SOI) and is the primary system responsible for providing a user interface common across all hosted Tactical Data Systems (TDS). The COC program will field a major hardware refresh/ upgrade in FY-11/12. This Hardware upgrade will be provided to support Virtualization of COC Software applications and the fielding of the Service Oriented Infrastructure in FY-12.

OPERATIONAL IMPACT

COCs have been deployed to Operation Iraqi Freedom and Operation Enduring Freedom. They present, display, and communicate the commander's intent and required information in support of expeditionary maneuver warfare and all aspects of mid-intensity warfare. COC's state-of-the-art technology shortens the decision making cycle by providing intelligence and information on friendly and enemy locations and activities in a consolidated, easily recognizable video display viewed simultaneously by all staff functions within the COC complex.

PROGRAM STATUS

The AN/TSQ-239(V) F Model is in post-full rate production and is entering the operations and sustainment phase of its life cycle. Fully operations capable status was met in FY10 and fielding is scheduled for completion during the 1st Quarter FY12. The COC program will continue to incorporate engineering changes and equipment technical refreshes to address operational requirements for improved technical capabilities and new

system interface requirements. The COC (V)1, MEF level, is planned for fielding in FY12.The Approved Acquisition Objective (AAO) for the COC is 301.

Procurement Profile:	FY 2011	FY 2012
Quantity:	32 (V)2/3/4	3 (V)1

Developer/Manufacturer:
(V)2/3/4 - General Dynamics C4 Systems, Scottsdale, AZ
(V)1 - TBD

MOBILE MODULAR COMMAND AND CONTROL (M2C2) SYSTEM

DESCRIPTION

M2C2 is a Mine Resistant Ambush Protected (MRAP) Cougar-based, on-the-move, beyond line-of-sight, command and control (C2) system. Using a wideband Ku-band satellite communications link, M2C2 provides unlimited access to the global information grid and has a full suite of tactical software applications for robust digital C2 and situational awareness. M2C2 fulfills Combat Operations Center (COC) requirements for on-the-move C2 and "jump COC" capabilities. Primarily designed for Marine infantry regiments, M2C2 keeps the commander and staff connected to all echelons of command during maneuver operations and while the COC displaces to new locations. Staff kits of ruggedized laptops loaded with the full suite of COC software are connected via secure wireless local area network (LAN) to the M2C2 point of presence vehicle for wideband satellite communications (SATCOM) connectivity to distant nodes. While on the move, the PRC-117G tactical radio and ANW2 waveform are used for wireless local area network (LAN); while at the halt a Secure Network 11 LAN is used. Three tactical network enclaves — SIPRNet, NIPRNet and Mission Specific — can operate simultaneously and can be configured to mission needs.

OPERATIONAL IMPACT

M2C2 provides Marine commanders and staffs with unprecedented connectivity to Joint and intra-Marine Corps digital data. Marine Operating Forces will have full COC capability for command and control, retrieval of data, situational awareness, and planning while on the move, at any distance and in any terrain. This allows commanders to dictate operational tempo and greatly reduce engagement cycle times across the entire battle space.

PROGRAM STATUS

M2C2 is an Urgent Universal Needs Statement project requested by the Special Purpose Marine Air Ground Task Force in Afghanistan, endorsed by Marine Forces Pacific and Marine Forces Central. The first M2C2 was fielded in Afghanistan in Dec 2009 and declared mission capable in Jan 2010. Two more systems just completed testing and were fielded in theater during Nov 2010.

Procurement Profile:	FY 2011	FY 2012
Quantity:	2	0

Developer/Manufacturer:
SATCOM and network design/production: SPAWAR Systems Center Pacific, Point Loma, CA

Component physical integration into the MRAP Cougar: SPAWAR Systems Center Atlantic's MRAP Integration Facility, Charleston, SC

Staff kit development/production: EFW, Inc, Fort Worth, TX

JOINT BATTLE COMMAND PLATFORM (JBC-P)

DESCRIPTION

The Joint Battle Command Platform (JBC-P) will be the "Second Increment" to the existing Force XXI Battle Command Brigade & Below (FBCB2) system. Currently, FBCB2 is a vehicle mounted system with significant latency, security and interoperability concerns for the joint environment. JBC-P intends to address these issues by providing an integrated network with increased bandwidth, a more "user-friendly" user interface, decreased latency, and increased security. In addition, the system will also incorporate a dismounted computing capability, in the form of a ruggedized, handheld device, as well as a beacon. This will allow warfighters the ability to send and receive tactical data, messages, and position location information without the requirement to be co-located with a tactical vehicle.

OPERATIONAL IMPACT

JBC-P will provide the Marine squad leader, platoon commander and company commander the ability to send and receive updated tactical information, changes to their respective operating environment, and minute-to-minute changes in location of friendly forces and other units within their immediate and extended battlespace.

PROGRAM STATUS

JBC-P is scheduled for Milestone C in late FY2012 or early FY2013 with fielding anticipated to begin in FY2013.

Developer/Manufacturer:
JBC-P is a government-led partnership of the U.S. Army, Marine Corps, and the Software Engineering Directorate in Huntsville, AL. There will be a variety of industry partners participating in the development and delivery of this capability.

JOINT TACTICAL COMMON OPERATIONAL PICTURE (COP) WORKSTATION (JTCW)

DESCRIPTION

The JTCW is a Windows®-based tactical COP workstation suite of applications designed for battalion and above to facilitate military command and control (C2) functions by improving situational awareness and enhancing operational and tactical decision-making. The JTCW replaces the fielded Command and Control Personal Computer (C2PC) software by combining C2PC with other applications into a single software load to provide greater capability for C2 planning and interoperability.

OPERATIONAL IMPACT

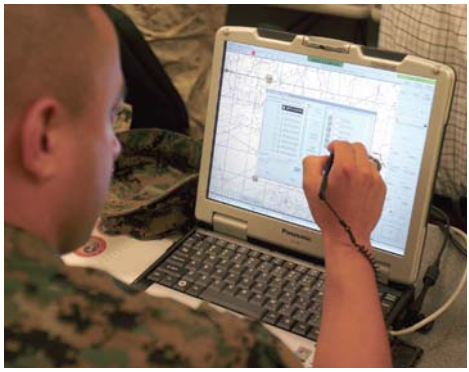
JTCW provides the warfighter a framework for enhanced systems interoperability and commonality between Marine Air Ground Task Force (MAGTF) systems for Command, Control, Communications, Computers, and systems for Intelligence, Surveillance, and Reconnaissance (C4ISR). JTCW is the primary point of entry for the COP, enabling users to view map data, view and update track data, develop and distribute overlays, exchange general message traffic, plan and distribute route information, and conduct general C2 planning. JTCW software will be loaded on the Intelligence Operations Workstation (IOW), and some of its software components will be integrated into future models of the MAGTF Combat Operations Centers (COC). JTCW can be operated in connected and disconnected operations.

PROGRAM STATUS

This Acquisition Category IV (T) program is using a single-step acquisition strategy with pre-planned life-cycle updates and maintenance. JTCW achieved Milestone C in the Third Quarter of FY2009. During the Fourth Quarter of FY2009, the JTCW and Tactical Combat Operations (TCO) program offices conducted fielding and training to achieve an initial fielding of JTCW 1.0 on the IOW. JTCW reached Initial Operational Capability in First Quarter FY2010. The Approved Acquisition Objective (AAO) is 910 systems for the TCO/IOW. The AAO number of systems for the COC still has not been determined.

Developer/Manufacturer:
Multiple developers with government integration

BLUE FORCE TRACKER (BFT) FAMILY OF SYSTEMS (FOS)



DESCRIPTION

The BFT FoS is the Marine Corps portfolio of systems that provides tactical input/output battlefield digitized position location information and situational awareness at the company level and below. BFT FoS consists of the BFT, the Mounted Refresh Computer (MRC), and the Tactical Operations Center (TOC) Kit. The BFT is a two-way, satellite-based command and control (C2) system that allows users to send and receive locations of friendly forces and display these positions on maps and overlays. The TOC Kit is a variant of the BFT that brings the BFT capability into operation centers and the MRC provides the same capability as the BFT, although it is terrestrial-based, riding on an Enhanced Position Location Reporting System tactical radio network. Primary subcomponents of the BFT are the KGV-72, an in-line encryption device that will classify the celestial based BFT to Type I, and the BFT II, the next-generation transceiver that will replace the legacy MT-2011, increasing system bandwidth and reducing current latency.

OPERATIONAL IMPACT

The BFT FoS is a new suite of equipment that will provide the capability to effectively increase C2 forces with providing friendly unit identification, location, intent, and status. This new suite is enhanced by its ability to both transmit and receive friendly force data on tactical, terrestrial radios, and celestial L-Band transceivers employing commercial satellite services.

PROGRAM STATUS

The BFT is an Army-led Acquisition Category I, Component (C) program. The Marine Corps has operated under an Urgent Universal Needs Statement, which in 2011 is transitioning to a program of record. The BFT Program Office is procuring and delivering BFTs and TOC kits with legacy software to facilitate training. The BFT FoS new suite of equipment — Joint Capabilities Release (JCR) software, the MRC, and the KGV-72 — is undergoing Field and Operational Testing. A combined fielding is expected in First Quarter FY2012.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	3,480

Developer/Manufacturer:
DRS Tactical Systems, Inc, Melbourne, FL

WARFIGHTER NETWORK SERVICES–TACTICAL (WFNS-T)

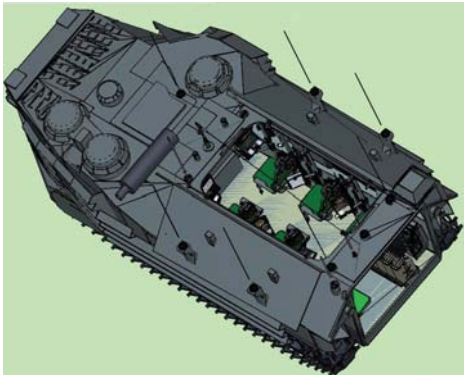
Warfighter Network Services–Tactical (WFNS-T) is a portfolio of core baseband networking hardware and software configured as a family of services (FoS) that facilitates end-user services requirements of multiple security enclaves for Marine Air Ground Task Force (MAGTF) tactical communications networks. The Tactical Data Network (TDN) FoS includes the TDN Gateway, Data Distribution System–Modular (DDS-M) Core, DDSM expansion modules, Information Assurance (IA) modules, and the Deployed IA Tool Suite.

TDN Gateway (vehicular) augments existing MAGTF communications infrastructure by forming a robust digital communications backbone for MAGTF tactical data systems. The system consists of TDN Gateways and TDN DDS interconnected with one another and their subscribers via a combination of common user, terrestrial, and celestial long-haul transmission systems, in conjunction with local, metropolitan and wide-area networks. TDN-Gateway System phase out and capabilities realignment letter, dated 28 September 2010, was signed and submitted to MARCORSYSCOM for disestablishment of the program.

TDN DDS-M provides the capability to create email, share files, transfer data, handle electronic messages and directory services, conduct transparent routing and switching of digital messages between local area networks, and perform circuit switching, network management, terminal emulation, and connectivity to Enhanced Position Location Reporting System (EPLRS) sub-networks. It enables access to strategic, supporting establishment, joint, and other-Service tactical data networks. DDS-M increases flexibility, survivability, and scalability via its modular design. It is designed to allow units to implement the system according to mission and operational requirements.

The Joint Enhanced Core Communications System (JECCS) multiplexes Marine Corps Tri-Band satellite systems, Tropospheric Scatter Microwave Radio Terminal (AN/TRC-170), and Digital Wideband Transmission System (AN/MRC-142) into an integrated network. This integration enables access to Defense Information Services Network (DISN) telecommunication services, wide and local area networks (SIPR and NIPR networks) and physical network management services, messaging services, International Maritime Satellite, Global Broadcast System (GBS), and Ultra High Frequency-Tactical Satellite (UHF-TACSAT) capabilities.

THE ASSAULT AMPHIBIOUS VEHICLE–COMMAND; C2 UPGRADE PROGRAM (AAVC7 C2 UPGRADE)



DESCRIPTION

The AAVC7 C2 Upgrade is focused on providing an improved command and control (C2) capability to the operating forces until the new amphibious combat vehicle reaches full operational capability. The AAVC7 C2 Upgrade Program will include replacement of antiquated tactical radios with current fielded radio systems, integration of a UHF Line Of Sight (LOS) and UHF Satellite Communications (SATCOM) capability, replacement of the obsolete vehicle intercommunications system, integration of a Blue Force Situational Awareness (BFSA) capability, redesign of the staff workstations, and integration of a tactical data network capable of hosting applicable Marine Air Ground Task Force C2 applications — Advanced Field Artillery Tactical Data System (AFATDS) and the C2 Personal Computer (C2PC). Additionally, the C2 upgrade includes the installation of an auxiliary power unit that provides power to the C2 suite for extended periods without the need to idle the AAVC7 engine, in support of silent-watch operations.

OPERATIONAL IMPACT

The last C2 improvements to the AAVC7 were fielded in 1994. The AAVC7 C2 upgrade program will provide the supported infantry battalion/regimental staffs with an improved C2 capability to address the gap that exists during amphibious operations and extended operations ashore. These capabilities will align the AAVC7 with the common network architecture used by today's ground forces at the battalion and regiment levels.

PROGRAM STATUS

The AAVC7 C2 Upgrade Program was designated an Acquisition Category IV (T) program during the Fourth Quarter FY2007. Preliminary Design Review was conducted during the Fourth Quarter FY2008 and Critical Design Review during the Second Quarter FY2009; Milestone C received during the Second Quarter FY2010. Initial Operational Capability is planned for FY2011 and FOC is planned for FY2013.

Procurement Profile:	FY 2011	FY 2012
Quantity:	58	10

Developer/Manufacturer:
SPAWAR Systems Center Charleston, SC

MULTI-BAND RADIO (MBR)

DESCRIPTION

The AN/PRC-117F MBR is a manpack tactical radio that covers the entire 30 to 512 MHz frequency range and provides embedded communications security, satellite communications (SATCOM), and electronic counter- countermeasures (ECM) capabilities. The AN/PRC-117F provides secure interoperability with Single Channel Ground and Airborne Radio System and a host of other tactical radios. The AN/PRC-117F can be configured for vehicular platforms using the AN/VRC-103(V)2 installation kit. The hardware can be reconfigured and software reprogrammed to optimize performance and add capabilities without opening the radio. The AN/PRC-117F and AN/VRC-103(V)2 are used for data/voice transfer to pass critical tactical as well as routine administrative and logistics information in both the data and voice modes using Line of Sight (LOS), Very High Frequency, and Ultra-High Frequency (UHF) spectrums and Beyond LOS using UHF satellite communications. Additionally, these radios will provide the Marine Air Ground Task Force (MAGTF) reliable long-haul reconnaissance and tactical air request communications. The manpack radio and its vehicular mount are employed in at the division, regiment, and battalion as well as other elements of the MAGTF. The AN/PRC-117F is the replacement radio for the AN/ PSC-5 and the AN/PRC-113 radios. It also replaces some of the AN/PRC-119 SINCGARS radios.

OPERATIONAL IMPACT

The AN/PRC-117F and the AN/ VRC-103(V)2 provide the Marine with significantly reduced communications footprint that effectively covers the previous communications spectrum with a single system, compared to the legacy capability that required at least two distinct radios. Additionally, the AN/PRC-117F and AN/VRC-103(V)2 add significant data capabilities within those spectrums where in some cases they did not previously exist. This increased capability better facilitates the distribution of command and control across the battlefield, in general, and at lower echelon, in particular.

PROGRAM STATUS

The AN/PRC-117F is 85 percent fielded throughout the Marine Corps and is predominately in a sustainment mode. The Approved Acquisition Objective (AAO) is 9,208 units. Software upgrades and engineering change proposals are planned for future technological insertions.

The VRC-103(V)2 is 55 percent fielded throughout the Marine Corps as of early 2011. Installation kits to replace those diverted for use within Mine Resistant Ambush Protected vehicles are being acquired. The AAO is 3,067 units. The VRC-103(V)2 is the replacement platform for vehicular mounted AN/VRC-83 and AN/PSC-5 radios. It also replaces some of the AN/PRC-119 SINCGARS radios. Software upgrades and ECP are planned for future technological insertions.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
Harris Corporation, Rochester, NY

HIGH FREQUENCY RADIO (HFR)

DESCRIPTION

The AN/PRC-150(C) manpack High Frequency (HF) radio provides half-duplex HF and Very High Frequency (VHF) tactical radio communications and is the replacement for the N/PRC-104 radio. It provides voice or data (using a modem) through single sideband modulation. The AN/PRC-150(C)'s 20-watt power output is provided by either the standard family of rechargeable or non-rechargeable military batteries or by external electrical power. Transmission security is provided through the AN/PRC-150(C)'s embedded Type 1 encryption. It can be used for either data/voice transfer to pass critical tactical as well as routine administrative and logistics information using the full HF spectrum or limited portions of the VHF spectrum. The AN/MRC-148 is the replacement radio for the AN/MRC-138 radio, and the AN/VRC-104(V)5 is the replacement radio for the AN/PRC-104s systems.

OPERATIONAL IMPACT

The AN/PRC-150(C) provides the Marine with the ability to significantly reduce the communications footprint by providing the ability to effectively cover the previous communications spectrum with a single system, compared to the legacy capability that required at least two distinct radios. Additionally, the AN/ PRC-150(C) adds significant increased data capabilities within those spectrums. This increased capability better facilitates long-haul distribution of Command and Control across the battlefield.

PROGRAM STATUS

In early 2011, the AN/PRC-150(C) is 87 percent fielded throughout the Marine Corps and is in predominately a sustainment mode. The Approved Acquisition Objective (AAO) is 5,724 units.

The AN/TRC-209 is 60 percent fielded throughout the Marine Corps. All assets have been purchased for the active forces, and the remaining units to be fielded are in the Reserves. However, the AN/TRC-209 is considered to be in a predominately sustainment mode. The AAO is 801 units.

The AN/MRC-148 is 87 percent fielded throughout the Marine Corps and is predominately in a sustainment mode. Fielding of any remaining quantities might be delayed until assets diverted to the MRAP are replaced. The AAO is 1,365 units.

The AN/VRC-104(V)5 is only marginally fielded to date due to a lack of identification of intend target platforms. All assets have been acquired, but await target identification. The AAO is 767 units. Software upgrades and engineering change proposals are planned for future technological insertions for all systems.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
Harris Corporation, Rochester, NY

PART 3: INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

MARINE CORPS INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE ENTERPRISE (MCISR-E)

"Accurate, timely, and relevant intelligence is critical to the planning and conduct of successful operations. Effective intelligence uncovers enemy weaknesses that can be exploited to provide a decisive advantage. Shortfalls in intelligence can lead to confusion, indecision, unnecessary loss of life, mission failure, or even defeat." (MCDP 2, Intelligence, page 28.)

For Marine Corps Intelligence to remain effective, it must evolve and adapt to both the changing demands of the modern battlefield and the capabilities provided by advances in technology. However, change must not be haphazard or driven by crisis of the moment. Rather, it must be logical and anchored to our core competencies.

The production of Marine Corps Intelligence is evolving from an assortment of partially connected units and intelligence systems to an "enterprise" solution in which all Intelligence, Surveillance, and Reconnaissance (ISR) functions and traditional and non-traditional ISR sources are leveraged. Thus, the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISR-E) expands the inherent ISR capacity of units at all echelons across the force by providing better integration of intelligence information to address complex collection environments through a flexible organizational construct. Meanwhile, leaders and units will contribute to a culture of institutional data

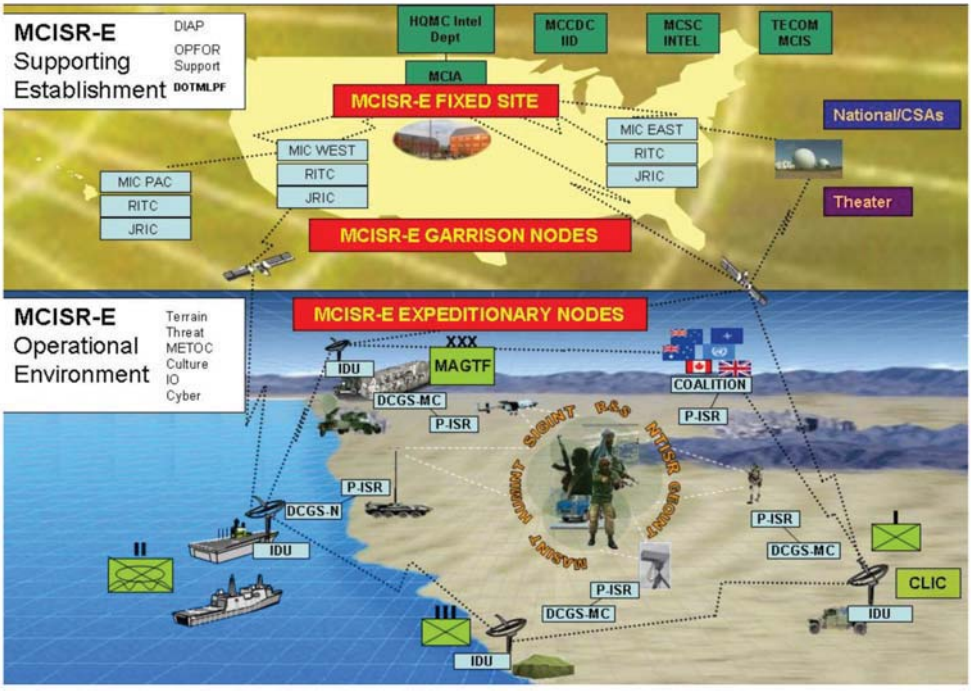


Figure 3.2. MCISR-E High-Level Operational Concept

and information collaboration and sharing while embracing operational flexibility through adaptive responses in operating concepts, doctrine, training, and material solutions. When fully implemented, the MCISR-E will provide each component element with access to the shared knowledge, data, resources, and expertise from the entire enterprise. Enterprise standards will also be compatible and consistent with the Marine Air Ground Task Force (MAGTF) Command and Control (C2) framework, facilitating the use of operational reporting and non-traditional ISR data by elements of the MCISR-E and providing for timely dissemination and sharing of relevant intelligence with Marine leaders at every echelon. Through our enterprise capabilities, Marine Corps ISR also leverages national, joint, and combat-support agency capabilities to address MAGTF requirements, while serving as a contributing partner to those agencies.

MCISR-E includes all Marine Corps ISR assets and functions covering the entire range of people, doctrine, policy, organizations, training, education, equipment, and facilities. The equipment acquisition strategy initially focuses on the intelligence processing, exploitation, analysis, and production systems within the Distributed Common Ground System–Marine Corps (DCGS-MC). Other functions of the MCISR-E include persistent ISR and intelligence dissemination and utilization. Persistent ISR provides the means for tasking, direction, and collection, while intelligence dissemination and utilization address the systems associated with dissemination, use, and feedback of intelligence. Through persistent ISR, the Marine Corps will seek to build a holistic collection strategy that includes joint and national ISR assets as well as a variety of organic battlefield sensors capable of providing non-traditional ISR support. Marine Corps also seeks to enhance tactical units ability to collect, report, receive, and use intelligence and combat information in addition to a core of Counterintelligence/Human Intelligence (CI/HUMINT) tactical questioners and tactical de-briefers.

The Enterprise includes company-level intelligence cells focused on gathering tactical information, providing an initial assessment for the company-specific operational area, and feeding data into the Enterprise for more comprehensive analysis. The MCISR-E provides an adaptive, flexible ISR framework supporting the intelligence requirements of a MAGTF as it executes expeditionary operations against hybrid threats in a complex environment. Each element will have extensive access to the broad capabilities of the Enterprise, the means to contribute its data and analysis to the Enterprise, and the ability to collaborate across the Enterprise. By providing common access to situational awareness, understanding and predictive analysis of the threat and relevant aspects of the operating environment, the Enterprise enhances decision-making at all echelons. MCISR-E will be organized into three distinct nodes:

- **Fixed:** The MCISR-E Fixed Site is managed by the Marine Corps Intelligence Activity. It serves as the Marine Corps'

principal connection to national agencies and is the exposure point for all USMC ISR data to the Intelligence Community (IC). The fixed site is the primary Enterprise data storage site.

- **Garrison:** IGarrison Sites conduct intelligence planning, analysis, and production in collaboration with expeditionary forces. These reach-back sites are located at each of the Marine Expeditionary Forces and will be capable of supporting forward operations from garrison or deploying to augment tactical, expeditionary nodes.
- **Expeditionary:** Expeditionary nodes are deployed with the MAGTF. They are scalable, aligned to the mission, and provide intelligence planning, direction, collection, production, and dissemination of intelligence products and combat information to the MAGTF and joint forces.

EQUIPMENT TRANSITION PLAN

The equipment transition plan must establish new business processes for combat development and acquisitions for MCISR-E, to include: standardization of the MCISR-E architecture, development of a Common Computing Environment (CCE) between elements and streamline

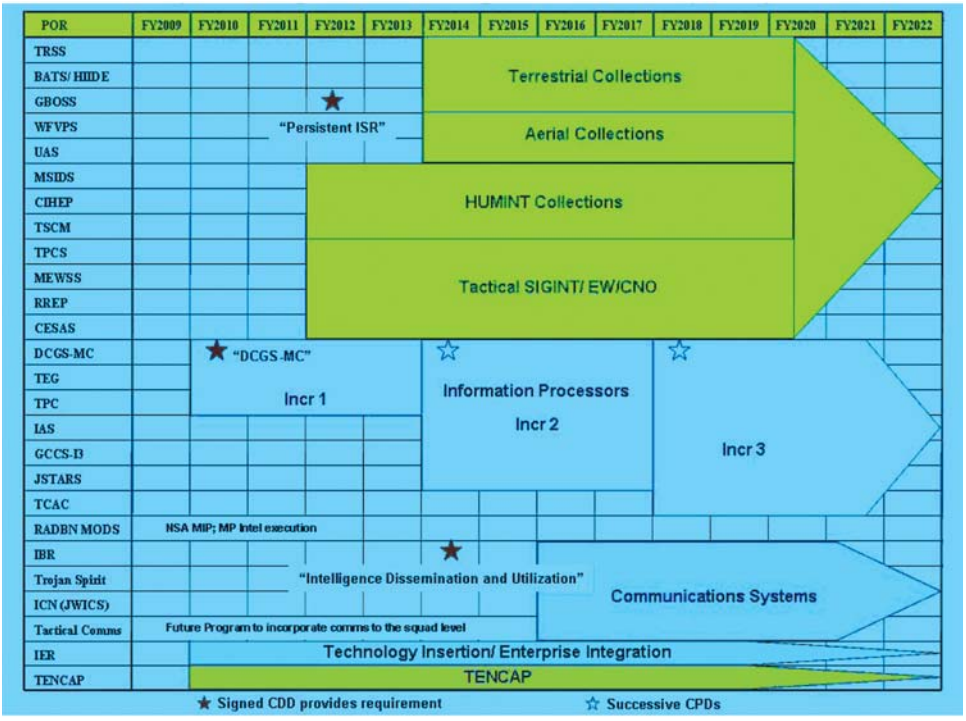


Figure 3.3. Objective Migration of Intelligence Material Capability Sets

requirements for document production. This plan must be balanced by sound acquisition management and a need to remain adaptable and ahead of the critical technology curve. An Enterprise Requirement Plan (ERP) will employ a documentation strategy to reduce costs, speed fielding, enhance capabilities, and ensure the integration of funding lines and programs of record (POR). See Figure 3.3.

INTELLIGENCE RESOURCES

Intelligence resources are the critical enabler of the manpower and materiel necessary to build and sustain the Enterprise effort. In FY2011, the Enterprise resources total nearly $1 billion, including contributory funding and manpower. More than 70 percent of this funding sustains more than 11,000 Marines and Marine Civilians. The Enterprise has benefitted greatly from the ongoing "Grow-the-Force" (GTF) initiative. The Military Intelligence Program (MIP), as part of the Service total obligation authority, comprises 92 percent of the Enterprise. The National Intelligence Program (NIP) comprises eight percent, of which the majority is contributory funding. MCIA uses NIP and MIP funding for its activities. The MIP funding also supports all ISR activities, including procurement of UASs, and more than a dozen acquisition programs of record supporting SIGINT, GEOINT, CI/HUMINT, and all-source analysis.

The Secretary of Defense has emphasized that the Nation cannot eliminate national security risks through higher defense budgets, and has renewed an emphasis in prioritization and tradeoffs. Hard choices will be inevitable, and tough decisions will be made. Programming decisions will be made based on a greater scrutiny in proper execution of funds. The Enterprise must become more efficient in its use of resources, while fully supporting the Marine Corps *Vision and Strategy 2025* priorities. This effort includes continuing innovation (e.g., Small Tactical UAS (STUAS). acquisition replacement for the contracted Scan Eagle services), and sustaining current capabilities (that include the growth of equipment and materiel from GTF). Effective management of projects and programs includes not only delivering required capabilities but also eliminating redundancies and waste. This will be an imperative in the coming years. Cost-effective ISR requires substantial, long-term investments to remain viable; those investments will require close and continuous planning to be effective. Priorities will always reflect primary support for the operating forces. The following pages highlight key ISR programs.

DISTRIBUTED COMMON GROUND SYSTEM–MARINE CORPS (DCGS-MC)

DESCRIPTION

DCGS-MC, in compliance with the Department of Defense (DoD) DCGS Family of Systems (FoS) concept, is a service-level effort to migrate select Marine Corps Intelligence, Surveillance, and Reconnaissance (ISR) capability into a single, integrated, net-centric baseline. As the processing, exploitation, analysis, and production component of the Marine Corps ISR Enterprise, DCGS-MC will comprise functional capability sets that support Marine intelligence analysts across the Marine Air Ground Task Force (MAGTF) by making organic and external all-source ISR data more visible, accessible, and understandable.

The DCGS-MC concept originated with the DCGS Mission Area Initial Capabilities Document Joint Requirements Oversight Council (JROC) Memorandum 001-03, dated 6 January 2003, which established the overarching requirements for a collection of net-centric capable systems that would contribute to joint and combined warfighter needs for ISR support. The JROC directed each service to pursue a coordinated developmental path based on the implementation of common enterprise standards and services consistent with the DoD's net-centric vision. The DCGS Integration Backbone (DIB) is the basic building block for interoperability among the Services' DCGS programs. The DIB is currently managed by a separately chartered DIB Management Office that directs day-to-day developmental efforts in coordination with the Army, Navy, Air Force, Marine Corps, and Special Operations Command. The Office of the Under Secretary of Defense (Intelligence) oversees the various DCGS program offices.

OPERATIONAL IMPACT

DCGS-MC will migrate selected legacy ISR processing exploitation, analysis and production capabilities, resulting in increased unit-level and enterprise-level capacity for ingesting sensor data, streamlined production of intelligence information, and enhanced management of finished intelligence products.

PROGRAM STATUS

The DCGS-MC program is projected to achieve Milestone B during the Second Quarter FY2011. The program entered the technology development phase in November 2007 and will fully leverage the developmental efforts of other services' DCGS programs, as their developmental efforts are fully underway. The program acquisition strategy is based on an incremental development path optimized to rapidly introduce government and commercial technologies, enterprise standards, and modular hardware components in order to minimize costs and program risk. The program subsumed the Tactical Exploitation Group and Topographic Production Capability programs during FY2010 as part of the Increment I development. DCGS-MC Increment II will add Tier I Intelligence Analysis System functionality.

Developer/Manufacturer:
Program Manager, Intelligence Data Fusion and Dissemination, Marine Corps Systems Command, Quantico, VA

COMMUNICATION EMITTER SENSING AND ATTACKING SYSTEM (CESAS)

DESCRIPTION

The CESAS consists of a variety of commercial off the shelf equipment capable of conducting advanced electronic attack against existing communications technologies. The CESAS is capable of conducting electromagnetic sensing and attacking while stationary or mobile from ground vehicles and in a stand-alone configuration. The current version of CESAS, AN/ULQ-30, is an advanced digital Electronic Attack (EA) system that is mounted in the Mine Resistant Ambush Protected (MRAP) vehicle. The CESAS provides the MAGTF commander with the capability to detect, deny, disrupt, and degrade threat communication as outlined in the Information Operations/ Electronic Warfare Plan.

OPERATIONAL IMPACT

The CESAS provides the MAGTF with its only organic ground capability to detect, disrupt, and deny enemy communications during expeditionary maneuver warfare and subsequent operations ashore. The CESAS can be mounted in a variety of existing mobile platforms and uses current manning levels established for the Radio Battalions. It is designed to operate in the High Frequency, Very High Frequency, and Ultra High Frequency ranges.

PROGRAM STATUS

Fielding is complete. The MRAP-variant Engineering Trade Study identified existing COTS prototypes that could provide full system solutions for next-generation Marine Corps Ground EA.

JOINT SURVEILLANCE TARGET ATTACK RADAR SYSTEM (JSTARS) COMMON GROUND STATION (CGS)

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. Other airborne platforms that provide a similar capability to the E-8C include the P-3 and the United Kingdom's ASTOR. 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 and Control network. The CGS is also capable of receiving and fusing imagery data from unmanned aerial systems directly with JSTARS data, providing an enhanced processing exploitation, analysis, and production 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 other 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 (IED) 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 conducting two levels of effort: (1) maintenance and upgrade of the current JSTARS ground systems; and (2) 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, 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 supports the full spectrum of CI/HUMINT operations. The system 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 via 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 intelligence 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

CIHEP 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. In 2011, CIHEP is 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 and Media Exploitation-Heavy module will be fielded to both CI/HUMINT Company and Radio Battalion (RadBn).

Developer/Manufacturer:
Automated Business Power, Gaithersburg, MD
Energy Technologies, Inc., Mansfield, OH
Harris Communications Corp, Rochester, NY
Klas Telecom, Inc., Washington, D.C.
Thales Communications, Rockville, MD

SENSITIVE COMPARTMENTED INFORMATION COMMUNICATIONS (SCI COMMS)

DESCRIPTION

SCI Comms is the former Trojan Special Purpose Integrated Remote Intelligence Terminal (Trojan SPIRIT) program and focuses on meeting broad-ranging intelligence communications requirements. SCI 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.

Trojan SPIRIT LITE: The Trojan SPIRIT LITE, AN/TSQ-226(V)1, is a Super High Frequency (SHF) dual-band multichannel Satellite Communications terminal using a 2.4-meter antenna. The system is packaged in 17-22 transit cases — weight capacity of 2,200 pounds and total volume of 103 cubic feet — that carry support items (spares, test, equipment and uninterrupted power systems) . It is easily transportable via High Mobility Multi-Wheeled Vehicle (HMMWV) 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: The 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 1-to-5 ratio.

FA-150T MIL Fly-Away: The 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.) is used to create a stable antenna platform. The FA-150T MIL Fly-Away measures 47.0x29.9.20.9 inches when stored and weighs 132 pounds. The FA-150T MIL Fly-Away typically serves as the "hub" in a Hub/Spoke architecture with a 1-to-5 ratio.

OPERATIONAL IMPACT

SCI 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). SCI 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 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 SCI 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 producers and consumers.

PROGRAM STATUS

The Approve Acquisition Objective (AAO) for palletized systems increased to 32 during the First Quarter FY2009. The AAO for mobile systems also increased to 20 systems. The Marine Corps Combat Development Command is conducting a capabilities-based assessment to determine 21st-Century SCI communications requirements. Wartime sustainment has been the primary focus since early 2010. IPv6 and other technology upgrades for existing Trojan SPIRIT systems commenced in FY2009.

Developer/Manufacturer:
Trojan SPIRIT LITE (V)1: Global Satcom Technology, Inc., Gaithersburg, MD

SWE-DISH: Rockwell Collins, Cedar Rapids, IA

INTELLIGENCE ANALYSIS SYSTEM (IAS) FAMILY OF SYSTEMS

DESCRIPTION

IAS FoS 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 and 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 "reach-back" 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 IAS FoS has provided the Marine Air Ground Task Force commanders with a mobile, all-source, intelligence data fusion and dissemination capability as well as access to time-sensitive intelligence data that is crucial to the military decision making process and the conduct of intelligence preparation of the battlespace.

PROGRAM STATUS

The IAS FoS is in the operations and support phase of the acquisition process. All systems are fielded to the operating forces along with Marine Reserve units. IAS FoS executes periodic hardware, software, and peripheral upgrades. Tier III refresh has started in First Quarter FY2011.

Procurement Profile:	FY 2011	FY 2012
IAS FoS Refresh		
IOSv3	83	0
IOSv2	123	0
IOWv2	1616	0

Developer/Manufacturer:
MTC Services Corporation, Stafford, VA

Space and Naval Warfare Systems Center, Charleston, SC

TECHNICAL CONTROL AND ANALYSIS CENTER (TCAC)

DESCRIPTION

TCAC is the Marine Corps' senior Signals Intelligence (SIGINT) system. TCAC satisfies 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). 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 is the primary system that enables SIGINT Marines to provide planning support and timely and accurate, fused signals intelligence to the MAGTF Command Element, Aviation Combat Element, and Ground Combat Element; interfacing with appropriate national, theater, and organic intelligence sources; and identifies high-interest events and equipment failures. TCAC is deployed in support of MAGTF operations worldwide 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 that will enhance the current capabilities of the existing systems. Major enhancements include Windows Server upgrade, Full Disk Encryption, a fully integrated audio processing capability, a Semantic Wiki with user-defined alerts, and integration with the Real Time Regional Gateway.

Procurement Profile:	FY 2011	FY 2012
AN/UYQ-83B		
TCAC RAWS	50	0
AN/MYQ-9B		
Transportable Workstation	0	302
AN/UYK-166		
TCAC MLS	5	0
AN/UYQ-103		
Tactical ONEROOF	39	0

Developer/Manufacturer:
Lockheed Martin Technical Operations, Camarillo, CA

ManTech International (SEMS), Stafford, VA

SPAWAR, Charleston, SC

MAGTF SECONDARY IMAGERY DISSEMINATION SYSTEM (MSIDS)

DESCRIPTION

The MSIDS Family of Systems provides the Marine Air-Ground Task Force (MAGTF) commander a tactical digital imagery collection capability for actionable intelligence in the Marine Expeditionary Force. MSIDS is located in MARSOC/Reconnaissance and sniper units, and all intelligence sections throughout all echelons of the MAGTF down to the platoon/squadron level. MSIDS is comprised of 12 suites that are tailored and scaled for units according to mission requirements and unit structure.

MSIDS provides the ability to capture digital still and video imagery from a ground perspective. MSIDS operators can manipulate, annotate, transmit and receive images in near-real time with commands throughout the area of operations, and externally with higher, adjacent, and joint or combined commands. The MSIDS Video Exploitation Workstation suite provides intelligence sections the capability to manage data, digitize analog video, edit video, and lift still imagery from video to create intelligence products.

OPERATIONAL IMPACT

MSIDS provides the only self-contained, hand-held, ground-perspective imagery capability to MAGTF units and is essential in intelligence collection and mission planning. Other MAGTF near real-time imaging systems, such as unmanned aerial systems and the F/A-18 Advanced Tactical Airborne Reconnaissance System (ATARS), 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.

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 FY11-12 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 2011	FY 2012
MSIDS Suites	126	153

Developer/Manufacturer:
Canon, Panasonic, ITT, ViaSat and FLIR
ManTech International (SEMS), Stafford, VA
EYAK Technologies, Anchorage, AK
Integrity Data Inc, Colorado Springs, CO

TEAM PORTABLE COLLECTION 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. 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 and systems. The program focuses on limited integration to allow rapid fielding of new capabilities to Marine Corps Radio Battalions (RadBns). TPCS-MPC suites consist of platform integration kits (PIK) that provide the interface devices required to deploy various configurations of the exploitation modules on non-dedicated platforms such as the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), Mine Resistant Ambush Protected (MRAP) vehicle, and Mobile Electronic Warfare Support System (MEWSS) vehicle.

The TPCS Block 0 is the currently fielded and operational configuration of TPCS-MPC program. The next generation upgrade currently under development is the TPCS Block 0 Modifications (TPCS Mods). TPCS-MPC program is a platform-agnostic combination of COTS, GOTS and NDI technologies and systems. Through mission-tailored capabilities, this system is designed to provide Electronic Warfare (EW) support to the MAGTF. The ability to detect, intercept, collect, geo-locate, and exploit Signals of Interest focuses the system's foundation. The engineering change proposal (ECP) process will rapidly insert future technologies to meet emerging threats.

OPERATIONAL IMPACT

TPCS Mods will provide enhanced SIGINT suites and PIKs to enable installation of the system onto various RadBns organic ground platforms. The TPCS Mods will be operated in a dismounted mode, or stationary mode and mobile modes when installed on a platform. In response to the Deputy Commandant, Combat Capabilities and Integration (DC, CD&I) guidance, the program office has pursued development of PIKs to provide armored protection against asymmetric threats. PIK development will be determined by existing and planned RadBn platform assets. Planned PIK development will be Up-armored HMMWV, the Integrated Assault Platform (IAP), the MRAP and the Light Armored Vehicle (LAV)-MEWSS.

PROGRAM STATUS

The TPCS-MPC Block 0 achieved Full Operational Capability (FOC) in 2009. The TPCS Mods effort was initiated with a Milestone B decision in Decem-

ber 2008. Initially planned as Block 1, the TPCs Mods was implemented as an ECP to TPCS Block 0. TPCS Mods, which provides significant modular and scalable enhancements compared to Block 0, has completed two developmental tests and participated in Empire Challenge 2010. TPCS Mods achieved Milestone C in November 2010 and Initial Operational Capability (IOC) is planned for the Third Quarter FY2012.

Developer/Manufacturer:
TPCS-MPC Block 0:
Scientific Research Corporation, Charleston SC
Space and Naval Warfare Systems Command, Charleston, SC

TPCS Mods:
Scientific Research Corporation, Charleston, SC
Space and Naval Warfare Systems Command, Charleston, SC

EXPEDITIONARY INTELLIGENCE SUPPORT (EIS)

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' Service Intelligence Center, MCIA plays a key role in the development of service doctrine, force structure, training and education, and systems development and acquisition.

MCIA consists of a command element; a production and analysis element that includes analysis, imagery, topographic support and weapons and technology 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 continuous 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, including each supported Geographic 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.

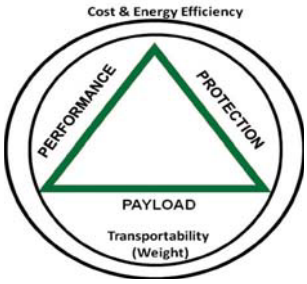
This unyielding focus on supporting Marine Forces — be they deployed in harm's way, preparing to deploy, or safely returned to their homeport — is the hallmark of MCIA's expeditionary intelligence support.

PART 4: GROUND COMBAT AND TACTICAL VEHICLES

GROUND COMBAT TACTICAL VEHICLE (GCTV) STRATEGY

DESCRIPTION

The objective of the Ground Combat Vehicle Strategy is to field a ground combat vehicle portfolio, structured to support three balanced Marine Expeditionary Forces (MEFs); one MEF capable of a two Marine Expeditionary Brigade (MEB) sea-based Assured Access operation with one MEB in Assault Follow On Reserve, and all MEFs capable of irregular warfare and sustained operations ashore across the range of military operations. Vehicles within the GCTV portfolio will have the balance of performance, protection, payload, transportability, and fuel efficiency to support rapid concentration and dispersion of Marine Air Ground Task Force (MAGTF) combat power, support strategic deployment concepts, and meet and sustain worldwide Marine Corps commitments.



Four pre-planned Marine Requirements Oversight Council decision points control execution of the strategy to meet the GCTV objective. Future decision points will guide planning to inform Program Objective Memorandum (POM) 13, POM 14 and POM 16 decisions regarding ground mobility investments. The information supporting each decision point will provide cost, effectiveness and risk information on alternative courses of action relevant to the issues challenging successful fielding of the future fleet.

OPERATIONAL IMPACT

The Marine Corps requires the ability to maneuver and sustain combat power across the range of military operations and in various environments — from the Arctic to the desert. The combat and tactical vehicles required to achieve this must provide appropriate force-level maneuver capabilities including compatibility with rotary-wing and surface assets, sustainable, and complementary to enhance tactical flexibility and minimize risk.

The GCTV strategy manages the future inventory in heavy, medium, and light vehicle categories which are further divided into combat and tactical vehicle types. Combat vehicles facilitate maneuver of combat teams while tactical vehicles facilitate the distribution of sustainment material and services by logistics teams. The three combat vehicle and three tactical vehicle categories are correlated to the range of military operations and operating environments to meet performance, protection, payload, and transportability characteristics. The entire portfolio of vehicles will have these characteristics so as to:

- Support rapid transition between concentration and dispersion of MAGTF combat power by fielding vehicles with modular and adaptable armor in multiple capability categories
- Support strategic deployment concepts by closely managing transport weights and prepositioning objectives
- Provide capacity to meet and sustain simultaneous Marine Corps commitments worldwide by maintaining operational availability and optimizing mix and distribution across the enterprise

Combat Vehicles: The Expeditionary Armored Forces Initial Capability Document (EAF ICD) is a USMC Capability-Based Assessment (CBA) focused on the mounted components of the ground combat element that informed the development of the combat vehicle categories to support the range of military operations. The EAF ICD and the GCTV Strategy define a triad of heavy, medium, and light combat vehicles to create a balanced force capable of achieving desired ends in the irregular spectrum while retaining core competencies against traditional threats.

Tactical Vehicles: The Ground Combat Forces Light Tactical Mobility Initial Capability Document (GCFLTM ICD) is one of several Service and joint CBAs and requirements documents that informed development of tactical vehicle categories to support military operations. To minimize the risk associated with unprotected legacy tactical vehicles operating in asymmetric environments, the GCFLTM ICD and the GCTV Strategy define a future fleet of tactical vehicles designed with adaptable armor and improved protection accomplished through the procurement of current armoring solutions.

PROGRAM STATUS

The GCTV Strategy is currently in its third phase of implementation. Decision Point (DP) 1 informed POM 10 investments. Decision Point 2 informed POM 12 investments. Key output of DP 2 analysis is a planned 10,000 vehicle Approved Acquisition Objective reduction by 4th Qtr, CY2013. Fiscal implementation of that reduction will inform POM 13. POM 12 endgame will set the course for key Requests For Information to be addressed during DP 3a, informing POM 13 investments and DP 3b, informing POM 14 investments.

The Marine Corps will continue to take a holistic approach to its GCTV Strategy. Planned actions during FY11 include:

- Investment in Assault Amphibious Vehicle upgrades in order to improve seamless ship to shore transition
- Accelerate the Marine Personnel Carrier program to provide sufficient lift ashore
- Initiate the Amphibious Combat Vehicle program based on a revised set of requirements, key performance parameters, and key system attributes
- Assess the weight, payload, protection and cost of the Marine Corps light vehicle fleet and determine the appropriate future mix of Joint Light Tactical Vehicles, High Mobility Muti-purpose Wheeled Vehicles (HMMWV) and inform HMMWV Recap/Reconstitution efforts.
- Examine a HMMWV survivability Upgrade program to leverage on/hand vehicles

AMPHIBIOUS COMBAT VEHICLE (ACV)

DESCRIPTION

The Amphibious Combat Vehicle (ACV) is a new-start ACAT 1D program which will provide an advanced generation, armored, amphibious combat vehicle. The ACV will be the primary means of tactical mobility for the Marine rifle squad – both at sea and ashore. The ACV will autonomously deliver the assault echelon from amphibious shipping at launch distances at, or beyond the horizon with a speed to enable the rapid buildup ashore, and provide combat-ready Marines at the objective. The ACV will possess superior ground mobility and speed similar to the M1A1 during sustained operations ashore and will possess the capability to engage/destroy threat peer vehicles and provide organic, direct fire support to dismounted infantry in the attack. The ACV will protect the force during offensive and defensive operations through 360 degree force protection applied against direct fire, indirect fire, and mines/improvised explosive device threats. The ACV will replace the legacy Amphibious Assault Vehicle that was fielded in 1972 and will be more than 40 years old when ACV is fielded. The ACV will be configured in three mission role variants: Personnel (ACV-P), Command and Control (ACV-C), and Recovery/Maintenance (ACV-R).

OPERATIONAL IMPACT

The ACV's Over the Horizon (OTH) launch capability enables the Navy and Marine Corps team to project power from the sea base and enables joint forcible entry if required, while providing force protection for the Amphibious Task Force. The ACV will support Ship To Objective Maneuver mobility and amphibious maneuver by providing the capability to launch from amphibious ships at operational distances (OTH), seamlessly transition between sea and land domains, establish footholds where conditions preclude other types of entry, and enable rapid build-up of combat power before an enemy can react. The ACV will enhance the Ground Combat Element's tactical and operational mobility with a balanced level of performance, protection and payload. This balance makes the ACV operationally relevant across the Range of Military Operations. From the point of design, the vehicle will be well protected against the full range of known and emerging threats while maintaining robust performance requirements in support of the Marine Corps mission profile.

PROGRAM STATUS

The ACV is currently in the "User Needs" assessment phase of the Joint Capabilities Integration and Development System process. To refine the requirements for the ACV, a comprehensive review of its operational requirements will be combined with an approach that will enable capabilities and cost trade-offs early in the process. The review will re-examine water mobility, land mobility, lethality and force protection in order to identify capability trade-space to drive down both production and sustainment costs. The overall intent is to make this an effective model for ground combat vehicle acquisition within the DoD. Using best practices in systems engineering, cost estimating, and government/industry teaming during concept refinement and technology development, the Marine Corps will develop operationally relevant and technically achievable requirements as the basis for the most affordable programs possible.

ASSAULT AMPHIBIOUS VEHICLE (AAV7A1) FAMILY OF VEHICLES (FOV) SURVIVABILITY INITIATIVE

DESCRIPTION

The Assault Amphibious Vehicle, initially fielded in 1972, remains the primary general-support armor personnel carrier (APC) for Marine infantry. The AAV FOV consists of the AAVP7A1 APC and two supporting mission-role variants: AAVC7A1 command and AAVR7A1 recovery. The AAV7A1 FoV provides ship to shore to objective mobility as well as direct fire-support with organic weapons. Programmed to be replaced by a new amphibious combat vehicle, the AAV7A1 FoV will continue to serve the Marine Corps until at least 2025. The AAV7A1 FoV previously underwent a series of capability enhancements to improve mobility, improve reliability, and extend the platforms' service lives. The Survivability Initiative will further improve the AAV, serving as a capability bridge to fielding and replacement by a new amphibious combat vehicle. This initiative will improve force protection and platform survivability by integrating technically mature upgrades into the existing hull. These upgrades will include: belly and sponson armor, shock- and blast-mitigating seats, spall lining, fuel tank protection, and deck liners. These upgrades are slated for approximately 600 AAVP7A1 and 50 AAVC7A1.

OPERATIONAL IMPACT

The upgraded Assault Amphibious Vehicle will provide significant survivability improvements through increased protection against current and future threats. Through improvements in both physical armor systems and supporting subsystems within the hull of the AAV, the upgraded vehicles will increase protection to embarked Marines and crew.

PROGRAM STATUS

The Survivability Initiative will enter the acquisition life cycle at Milestone B during FY11 and begin the engineering, manufacturing and development phase. Currently, Developmental Testing is planned for late FY2012 followed by Operational Testing in early FY14. Initial fielding is planned for late FY2014. Low Rate Initial Production is planned for the Third Quarter FY2013, and Full Rate Production is planned to begin in the Third Quarter FY2014.

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 Vehicles (M-ATVs) support 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 (HMMWV) 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 (C2) 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), C2, 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 reconnaissance and 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 highly 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 need a vehicle capable of functioning in a counter attack after surviving a "first blow" ambush or attack. The MRAP provides that protection.

PROGRAM STATUS

The Mine Resistant Ambush Protected (MRAP) program rapidly evolved from a small Rapid Deployment Capability component effort to a Joint Acquisition Category (ACAT) ID Major Defense

Acquisition Program (MDAP) in September 2007. The Marine Corps is executing the joint program on behalf of the Navy (lead Service). 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 MRAP Joint Program Office (JPO) has used a series of Low-Rate Initial Production (LRIP) awards with six of the vendors to order a majority of the vehicles.

The JPO has initiated a constant modernization process and Capability Insertion (CI) program in theater for vehicles redeploying from Iraq to Afghanistan at the MRAP sustainment facility in Kuwait. All MRAP Cougars (CAT I and CAT II), RG-31 and RG-33 vehicles in Afghanistan, for example, are being upgraded with independent suspension systems (ISS) to improve drivability and mobility 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 Afghanistan.

The JPO awarded a contract to Oshkosh Corporation in June 2009 for a smaller, more agile MRAP variant. The MRAP-All Terrain Vehicle (M-ATV) fulfills an urgent and compelling requirement to protect Marines with a highly survivable and off-road capable vehicle. The first M-ATVs arrived in Afghanistan in October 2009 and Initial Operational Capability was achieved on April 2010. The current M-ATV requirement for all Services is 8,440 vehicles.

PROGRAM STATUS

In the fall of 2010 the MRAP program responded to an urgent requirement from theater for recovery vehicles with the same survivability as MRAP vehicles due to the increase in op tempo and increased attacks against Coalition Forces. A delivery order modification was made to an existing IDIQ contract with Navistar Defense to produce 250 of these vehicles. The first recovery vehicles will be delivered in the spring of 2011.

On 15 December, 2010, Joint Requirement Oversight Council Memorandum 194-10 increased the MRAP vehicle Acquisition Objective (AO) to 27,344. To date, a total of 26,552 vehicles have been procured for the Service and U.S. Special Operations Command (SOCOM) through 20 LRIP decisions. As of 3 February 2011, the government had accepted 25,549 MRAP vehicles; 21,707 vehicles have been fielded to units in theater.

Procurement Profile:	FY2007-FY2010
Army	20,366
Marine Corps	3,413
Navy	582
Air Force	815
USSOCOM	1,119
Test Vehicles	257
TOTAL	26,552

Developer/Manufacturer:
BAE, York, PA

BAE-TVS, Sealy, TX

Force Protection Industries, Inc.,
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 four battalions of armored personnel carrier (APC) general support lift to the ground combat element (GCE) of the Marine Air Ground Task Force (MAGTF). Designed to complement the Service's Amphibious Vehicle capability, the MPC will be effective across the range of military operations during sustained operations ashore and reinforce the assault echelon during forcible-entry operations. Both MPC and the new amphibious combat vehicle will replace the legacy Amphibious Assault Vehicles (AAV) in the Assault Amphibian (AA) Battalions of Marine divisions. An MPC Company is designed to lift an infantry battalion in conjunction with the infantry's organic wheeled assets. MPC will field a base vehicle (MPC-P) and two supporting mission role variants (MRV): MPC-C and MPC-R. Two MPC-Ps lift a reinforced rifle squad. The MPC-C supports mobile battalion command echelon/fire-support coordination center functions. The MPC-R fulfills mobile recovery and maintenance requirements.

OPERATIONAL IMPACT

The MPC supports expeditionary maneuver warfare and the requirements of the GCE based maneuver task force by providing a platform that possesses a balance of performance, protection, and payload attributes. From the point of design, the vehicle will be well protected against the full range of known and emerging threats while maintaining robust performance requirements in support of the Marine Corps mission profile (30 percent on road / 70 percent off road). Effective on land while maneuvering with other wheeled and tracked combat and tactical vehicles, possessing sufficient lethality to protect the vehicle and support dismounted infantry in the attack and retaining sufficient payload to carry the infantry's combat loads, mission-essential equipment, and days of supply, the MPC will be well postured to meet the many and varied demands of MAGTF operations. Additionally, the MPC will possess a viable tactical water mobility capability. Although not intended to achieve operational water mobility performance levels (e.g., the over-the-horizon maneuver capability), the MPC will be sufficiently capable in the water to use the sea in the littoral operating area as maneuver space, breach inland water obstacles, and thereby increase the MAGTF commander's maneuver options and the complexity of the threat faced by our enemies.

PROGRAM STATUS

In the spring of 2008, the Marine Requirements Oversight Council (MROC) validated the MPC requirement and approved the solution as an advanced-generation eight-wheeled APC to be integrated into the AA Battalions. The initiative is currently preparing for a Materiel Development Decision (MDD) in FY2011 through a series of Pre-Milestone A technology-development efforts. Foremost among these efforts is a development and exploitation of a technology demonstrator vehicle at the Nevada Automotive Test Center (NATC). This effort is working to shape and refine both requirement and performance specification details, spark Industry interest and investment, and reduce eventual program risk. The MPC program, once launched, will rely on full and open competition throughout the developmental cycle.

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 MV-22 tilt-rotor aircraft and CH-53E/K helicopters. It will also 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 MAGTF 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 2011	FY 2012
Quantity:	31	0

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

LIGHT ARMORED VEHICLE (LAV) PROGRAM

DESCRIPTION

The LAV Program Office (PM-LAV) has fielded numerous upgrades for the legacy family of LAVs. The LAV-25 and its six supporting mission role variants are being upgraded to the A2 configuration. LAV-A2 are equipped with appliqué armor, spall liners, more capable fuel injectors and radiators, an increased capacity alternator, an improved suspension to handle the increased weight of appliqué armor, and an automated fire suppression system for improved force protection and vehicle survivability.

The Program Office is also fielding an upgraded command and control (C2) mission role variant (LAV-C2A2U) to upgrade legacy radios with more capable systems, add auxiliary power and provide network linked laptops for improved situational awareness and supporting arms control.

A driver's protection kit consisting of ballistic blankets, vehicle commander and gunner blast shields and improved protected machine gun mounts are being fielded to improve platform survivability and lethality. Future survivability enhancements include improved fuel cell protection, blast mitigating seats and additional internal spall protection.

PM-LAV is also developing the LAV-Antitank (LAV-AT) and LAV-Recovery (LAV-R) modernization and upgrade programs. In addition to increased overall reliability, availability, and maintainability of the mission suite, the LAV-AT program will provide a second-generation thermal sight and an advanced fire-control system capable of firing the current and next-generation heavy anti-armor missile. The LAV-R upgrade will provide a modern crane, winch, and generator to match the increased weight of the platform and eliminate obsolescence issues. Both LAV-AT and LAV-R modernization initiatives are designed to improve the supportability and mission effectiveness of the family of LAVs by providing mission-suite upgrades and extending the effective service life of the platform into the future.

OPERATIONAL IMPACT

The LAV A2 Program enhances crew force protection and vehicle survivability and allows the fleet to continue to effectively support air and ground operations. Many of the upgrades were fielded in support OPERATION IRAQI FREEDOM and are supporting OPERATION ENDURING FREEDOM. Feedback from the Light Armored Reconnaissance (LAR) Battalions in-theater is positive; their ability to accomplish the mission and better protect the force has been significantly improved.

PROGRAM STATUS

The LAV A2 Program has been developed and is currently being applied to Legacy and newly produced LAVs at the USMC Maintenance Centers at Albany, GA and Barstow, CA. The C2 Upgrade

Program is being fielded to operational units. The driver's protection kit and the vehicle commander and gunner blast shields have been fielded throughout the fleet. The improved protected machine gun mount has completed operational assessment. The LAV-AT modernization program is scheduled for Initial Operational Capability (IOC) in the Third Quarter FY2015. The LAV-R upgrade program integration activities began in the Second Quarter FY2010 and will reach IOC in the First Quarter FY2012.

Procurement Profile:	FY 2011	FY 2012
Quantity:	10	55

HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE (HMMWV) EXPANDED CAPACITY VEHICLE (HMMWV ECV)

DESCRIPTION

The 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. Upgrades include: a more powerful and environmentally compliant 6.5L turbo engine; microprocessor- controlled engine electrical start system; increased payload (500 pounds); improved corrosion prevention; and access panels to facilitate maintenance. The Marine Corps is currently conducting a Light Fleet Assessment to determine the appropriate mix and distribution of armored and unarmored portions of the light tactical fleet of vehicles.

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.

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. Training courses and technical manuals are being updated, and ECV unique parts and tools are being integrated into the existing supply system. The Approved Acquisition Objective (AAO) for the Marine Corps is currently under review as part of the Light Fleet Assessment.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

JOINT LIGHT TACTICAL VEHICLE (JLTV) FAMILY OF VEHICLES

DESCRIPTION

The JLTV FoV is a joint Army/Marine Corps multinational program for a family of light tactical vehicles and companion trailers. JLTV objectives are to restore the mobility and payload of the High Mobility Multi-Wheeled Vehicle (HMMWV) to the future light vehicle fleet, while provided expeditionary, modular protection within the weight constraints of the expeditionary force. The JLTV program will additionally strive to minimize ownership costs by maximizing commonality, reliability enhancements, and fuel efficiency; savings will also be garnered by executing effective competition throughout the program development. The JLTV FoVs program includes six configurations and companion trailers in two variants (the Combat Tactical Vehicle and the Combat Support Vehicle). 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 (ICD), 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 equipment modernization effort. JLTV will give the warfighter increased protection through the use of scalable armor solutions, while returning the payload currently traded for added armor protection in existing tactical vehicles. JLTV will increase warfighter maneuver capacity by providing expeditionary protected mobility on the modern battlefield. JLTV's performance characteristics will exceed the armored HMMWV and will ensure expeditionary protected mobility for the MAGTF and 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 TD phase will inform and support finalization of the CDD scheduled for completion in September 2011 prior to Milestone B.

The three original equipment manufacturers each delivered seven prototype vehicles and four trailers for TD testing during May FY10. Further a total of seven Australian vehicles were delivered during June/July 2010 for testing. Government TD testing is scheduled to conclude during May 2011. Upon the completion of the TD phase, the services currently anticipate conducting another full and

open competition with award of two contracts no later than March 2012 for the Engineering and Manufacturing Development phase, with full production and fielding anticipated in FY2017. The Marine Corps' Approved Acquisition Objective is for 5,500 vehicles.

Developer/Manufacturer:
To be determined.

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 (both standard and extended wheel bed configurations), 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 tractor variant serves as the prime mover for the Mk 970 refueling trailer. The Navy also uses MTVR vehicles for construction battalion (Seabee) operations. The HIMARS Re-supply vehicle (and associated trailer) is an MTVR variant that was procured as part of the USMC HIMARS artillery system.

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 22-year service life of the vehicle. The MAS can withstanding small-arms fire, improvised explosive devices, and mines. It includes upgraded suspension, upgraded air conditioning 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 "reducible height" configuration of MAS allows for removal of cab roof, in order to accommodate Maritime Pre-positioned Shipping (MPS) space requirements.

OPERATIONAL IMPACT

More than 2,000 MTVRs have seen service in Iraq and/or Afghanistan. With its 70 percent off-road mission profile and highly survivable armor package, the MTVR has been heavily used in theater for logistics missions, as well as "other missions as assigned".

PROGRAM STATUS

The MAS is installed in all MTVR variants in Afghanistan. The MTVR Program Office has continued to improve the MAS in response to Urgent Universal Needs Statements (UUNS) — adding increased underbody blast protection, fuel tank fire-protection kits, and 300-amp

alternator kits (e.g., for powering counter improvised explosive devices), as well as developing the reducible height MAS configuration. In addition, live-fire testing has resulted in additional MAS upgrades for non-reducible armored MTVRs and for the armored troop carrier. The program office is developing additional safety upgrades, such as fire suppression systems, in response to UUNS(s); and is working with the Office of Naval Research under Future Naval Capability (FNC) to develop a fuel economy upgrade kit.

Procurement Profile:	FY 2011	FY 2012
Quantity:	195	719

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, break bulk, and palletized cargo; and bridging equipment. The LVSR will have wrecker and tractor 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 in which Marines routinely operate.

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 Approved Acquisition Objective of the LVSR is 2,000 vehicles. 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. At the end of FY2010, 1,237 Cargo variant, 40 Tractor variant and 15 Wrecker variant vehicles had been placed under contract.

Procurement Profile:	FY 2011	FY 2012
Cargo variant	130	118
Tractor variant	232	113
Wrecker variant	95	20

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 (IEDs) and obstacles along routes in Marine Air Ground Task Force areas of operation. R2C units can perform standoff 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 FY2010 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 (MRAP) vehicles to provide an initial R2C capability set. Increment II consists of rebuilding CAT I, II, and III MRAPs, addition of an interrogation arms onto specified R2C platforms, and procurement of automated route reconnaissance kits and vehicle optic senor systems.

Procurement Profile:	FY 2011	FY 2012
Lightweight Mine Rollers	168	0
Lightweight Route Clearance Blades	112	0
Vehicle Mounted Mine Detector Systems	9	0
Robots	0	112

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.

PART 5: FIRE SUPPORT

GROUND INDIRECT FIRES

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 surface 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 complementary systems of ground indirect fires.

Ground indirect fires requires a medium-caliber cannon artillery capability; an extended-range, ground-based rocket capability; and a capability with greater lethality than current mortars but greater tactical mobility than current artillery systems. This provides a balanced, expeditionary, ground-based fires capability that is responsive, complementary, redundant, and within the range and lethality requirements of the targets the Marine Corps will be facing across the full range of military operations.

The foundation of ground indirect fires is the M777A2 Lightweight 155mm howitzer that, through design innovation, navigation, positioning aides, and digital fire control, offers significant improvements in lethality, survivability, mobility, and durability compared to the M198 howitzer. The High-Mobility Artillery Rocket System (HIMARS) fills a critical range and volume gap in Marine Corps fire-support assets. HIMARS provides an extended-range precision capability to Marine forces. The third leg is the Expeditionary Fire Support System (EFSS), a towed 120mm mortar. EFSS will be the principal indirect fire support system for heli- and tiltrotor-borne forces executing Ship-to-Objective Maneuver (STOM) as part of a MAGTF. When paired with an Internally Transportable Vehicle, EFSS can be transported on board MV-22 and CH-53E aircraft. EFSS-equipped units will have immediately responsive, organic indirect fires at ranges beyond current infantry battalion mortars.

Several additional innovative systems related to fire support significantly enhance the warfighting efficiency and effectiveness of the MAGTF, including the Advanced Field Artillery Tactical Data System (AFATDS), and the Target Location, Designation, and Handoff system (TLDHS).

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. Designated the M777A2, the LW155 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 of more than 7,000 pounds compared to the M198 system. Additionally, the M777A2 emplaces three times faster, displaces four times faster, is more mobile over 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 a maximum of four rounds per minute for short periods of time, with sustainment firing of two rounds per minute.

The M777A2 is an upgrade to the initial design 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 :and accuracy. The lightweight M777A2 can be airlifted by the CH-53E/K and the MV-22B Osprey into remote high-altitude locations inaccessible by ground transportation. Some M777A2 facts:

• The M777A2 can fire the precision

guided Excalibur munitions, developed by Raytheon Systems and General Dynamics Ordnance and Tactical 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 mega joules.
- 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 light weight, 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 signed a FMS case to purchase the M777A2. Through July 2010, the total number of orders for the gun had reached 955 units.

Procurement Profile:	FY 2011	FY 2012
Quantity:	22	0

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

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 primarily employs 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 (greater than 40 miles) with high volumes of lethal fire under all weather conditions and throughout all phases of combat operations ashore. In early 2011, HIMARS is 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 the Fourth Quarter FY2008. Full Operational Capability was achieved in FY2010.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
Launcher and MFOM: Lockheed Martin Corporation, Missiles & Fire Control Division, Dallas, TX

EXPEDITIONARY FIRE SUPPORT SYSTEM (EFSS)

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

DESCRIPTION

The EFSS is the third and final system of the 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 (STOM) 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/K helicopter or a single MV-22B 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 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.

Procurement Profile:	FY 2011	FY 2012
Quantity:	12	0

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

ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS) FAMILY OF SYSTEMS

Ferte-Saint Aubin, France

DESCRIPTION

The AN/GYK-60 AFATDS is an automated fire support command and control (C2) system that provides the MAGTF the ability to rapidly integrate all fire support assets into maneuver plans via digital data communications links. AFATDS supports the timely exchange of fire-support information and target processing essential to survival on the modern battlefield through the integration of all fire support assets to include artillery, rockets, mortars, naval surface fire support, and close air support. Additionally, the AN/PYG-1 Back-Up Computer System (BUCS) and Mobile Tactical Shelter (MTS) are subsystems of the AFATDS program that fulfill requirements identified in the USMC AFATDS Operational and Organizational Concept.

The AN/PYG-1 BUCS is a handheld computer system that resides on a ruggedized personal digital assistant (R-PDA) designed to provide a back-up capability for computing ballistic firing solutions, as well as survey and meteorological functions, in support of field artillery cannon systems. The BUCS hosts the following three software applications: (1) Centaur, the Light-Weight Technical Fire Direction System application to compute safety parameters and artillery technical firing solutions; (2) Field Artillery Survey Program (FASP) software to compute artillery survey data; and (3) the meteorological software application to convert raw meteorological Plot Balloon (PiBall) readings into

ballistic and computer meteorological messages.

The AN/TSQ-17 MTS is a modified U.S. Army-procured shelter mounted on a High-Mobility Multiple Wheeled Vehicle (HMMWV) employed by the battery Fire Direction Center (FDC), Battery Operations Center (BOC), and Liaison Sections. It provides environmental protection for the AFATDS, its associated peripherals, and the AFATDS Operators. The MTS is designed to protect against wind driven sand, dust, and rain. It will also permit FDC and liaison sections to perform required tasks at night without compromising light discipline. The MTS provides environmental protection at the battery level, while the Combat Operations Center (COC) provides environmental protection for AFATDS at the battalion and above.

OPERATIONAL IMPACT

AFATDS will be the primary Commanders Fire Support Coordination System employed from MEF to Battery level operations. AFATDS will be used to provide the commander with the ability to rapidly employ all fire support assets at his disposal. This will allow him the flexibility to determine what weapon systems to employ in shaping and dominating his battle space. AFATDS will greatly enhance the interchange of tactical data between all MAGTF Tactical Command and Control Systems through the use of graphics, common operating applications and communications.

PROGRAM STATUS

The AFATDS program is an Evolutionary Acquisition program, designated an Acquisition Category (ACAT) II for the Army. Since AFATDS is a multiple-service program and the Army is the Executive Service, there is no USMC-assigned ACAT designation, and by default, the Commander Marine Corps Systems Command (MCSC) is the decision authority for Marine Corps AFATDS program-related issues. The Program Decision Authority (PDA) was delegated by Commander, MCSC to the Director, Product Group 11 on 24 October 2007. The AFATDS program is in Post Milestone C – Sustainment (MS III December 95). MTS is scheduled to achieve Initial Operational Capability (IOC) in October 2011. Full Operational Capability (FOC) will be achieved in October 2012.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
AFATDS: Raytheon, Ft Wayne, IN

TARGET LOCATION, DESIGNATION, AND HAND-OFF SYSTEM (TLDHS)

BUCS: Raytheon, Ft Wayne, IN

MTS: SPAWAR, Charleston, SC

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) and joint forward observers (JFO) 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 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 often employed in conjunction with intelligence surveillance and reconnaissance (ISR) assets by tactical air control parties.

PROGRAM STATUS

TLDHS is currently in Block II full rate production. TLDHS Block II provides extended CAS functionality for the FAC/JTAC via enhanced digital interfaces with the A-10, 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 FOC in the Fourth Quarter FY11. The AAO is 1,041 with more than 750 fielded through FY2010.

Procurement Profile:	FY 2011	FY 2012
Quantity:	281	0

Developer/Manufacturer:
Stauder Technologies, Saint Peters, MO

THE FAMILY OF TARGET ACQUISITION SYSTEMS (FTAS)

DESCRIPTION

FTAS is the Ground Combat Element's 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 — which include mortars, artillery, and rockets — within a 1600 mill search sector from ranges of .75 to 24 kilometers. It 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 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 procurement. AAO for TPS is seven sets, two for each active-duty artillery regiment and one for the reserve component. Naval Surface Warfare Center, Crane, IN, is the system integrator.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
AN/TPQ-46: Northrop Grumman/Thales Raytheon

JOINT NON-LETHAL WEAPONS PROGRAM (JNLWP)

The Department of Defense 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."

As U.S. troops overseas continue to face the daily challenges of irregular warfare, non-lethal weapons are providing critical escalation-of-force tools in situations where U.S. operating forces have only seconds to distinguish between adversaries and innocent civilians and act accordingly. Non-lethal weapons provide escalation-of-force options for warfighters, minimizing casualties and collateral damage to critical infrastructure.

Non-lethal weapons have numerous counter-personnel and counter-materiel applications across the spectrum of conventional and irregular warfare operations, providing capabilities that assist operating forces in discerning intent, delaying and deterring individuals, and discriminating targets in a variety of force application and force protection missions. Examples of operations with non-lethal weapons applicability include checkpoint/entry control, area (including forward operating bases and ports), convoy security, law and order operations, humanitarian and disaster relief, stability operations, and urban operations.

The Commandant of the Marine Corps serves as the Executive Agent for the DoD's Non-Lethal Weapons Program (JNLWP). Located in Quantico, VA, the Joint Non-Lethal Weapons Directorate manages the day-to-day operations of the program.

The JNLWP sponsors research and development of new capabilities intended to non-lethally deter, delay, deny or disrupt personnel or equipment, for example, stopping vehicles at checkpoints or clearing personnel from streets or facilities. This includes research on new technologies — such as directed energy — that can provide a range of non-lethal effects and widen the choice of response options in multiple escalation-of-force scenarios.

The program has put the following into the hands of warfighters: blunt-impact munitions (12-gauge and 40mm); optical warning/distraction devices (LA-9/P, Glare MOUT); acoustic hailing devices; vehicle arresting devices (vehicle lightweight arresting device and the portable vehicle arresting barrier); marking munitions, flash-bang grenades, and temporary incapacitation devices, such as human electro-muscular incapacitation devices (TASERs®); and escalation-of-force mission modules.

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 IIIC with the Safety Control Module (GBD-IIIC SCM) and the GLARE MOUT 532P-M (Mini-Green) systems. These systems provide safe and effective visual hail and warning technology that 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 unsafe lazing of personnel that are 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 GLARE MOUT 532P-M 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 GLARE MOUT 532P-M and LA-9/P provide Commanders with complementary, non-lethal hailing and warning capabilities in support of their EoF missions. The GLARE MOUT 532P-M provides personnel with a weapon-mounted, short-range (25 to 218 yards) device, while the LA-9/P provides a long-range capability (75 to 1,094 yards) 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 to date. All fielded GBD-IIICs have since been modified to incorporate the SCM, and the device is now designated as the LA-9/P. An additional 288 LA-9/Ps have been procured and delivered to the Marine Corps during FY2010 to meet expanded operational requirements. The GLARE MOUT 532P-M was initially provided to the Marine Corps by the Army's Rapid Equipping Force in 2008. The Marine Corps procured an additional 948 systems in FY2010. Both the LA-9/P and the GLARE MOUT 532P-M will be replaced by the Ocular Interruption Device beginning in FY2015.

Procurement Profile:	FY 2011	FY 2012
LA-9/P:	0	0
GLAREMOUT 532P-M:	0	0

Developer/Manufacturer:
TJ Inc., Christmas, FL

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 that can be mounted to the High-Mobility Multipurpose Wheeled Vehicle (HMMWV) Marine Corps Transparent Armored Gun Shield (MCTAGS) turret, the Mine Resistant Ambush Protected (MRAP) vehicle Objective Gunner Protection Kit (OGPK) turret, or a M3-tripod. The NL/TLMS consists of three banks of ten launch tubes, each at fixed elevation angles of 10, 20, and 30 degrees from the horizontal, achieving 360° degree coverage by traversing the MCTAGS and OGPK turrets. The NL/TLMS fires a multi-flash-bank grenade out to a maximum range of approximately 135 meters. The system includes a launcher, hand-controller, and cable subsystem. The hand-controller firing system is used to select and 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 checkpoint, 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 Marines and a potential threat allowing time to determine intent and escalate force if necessary.

PROGRAM STATUS

A Limited User Evaluation was conducted on the NL/TLMS by representatives of the operating forces at the Expeditionary Systems Evaluation Division (ESED) of the Naval Surface Warfare Center Crane Division located in Fallbrook, CA in April and May 2009. Additionally the U.S. Army Tank-Automotive and Armaments Command (TACOM) is scheduled to conduct a 500-mile road test, followed by live-fire testing with the NL/TLMS attached to a MRAP OGPK turret in September 2010 to safety-certify the system for use on MRAP vehicles. The 25 NL/TLMS originally planned to be shipped to Afghanistan in the Second Quarter FY2010 will now be shipped upon successful completion of the TACOM test and new equipment training to provide the NL/TLMS capability on MRAP vehicles and HMMWVs.

Procurement Profile:	FY 2011	FY 2012
VENOM™:	0	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 suppress targeted personnel. It will distract, disorient or degrade an individual's ability to perform a specified action within a targeted zone of influence. The objective of the program is to provide improved non-lethal counter-personnel capabilities to operating forces for controlling crowds, denying and defending areas, controlling access, and engaging threats while providing increased standoff distances for protection of friendly forces. The MPM-NLWS system will dispense non-lethal munitions and provide longer range, greater area coverage, extended duration, and better scalability of effects than in-service non-lethal weapon systems. The initial increment of the MPM-NLWS will be mounted onto the Marine Corps Transparent Armored Gun Shield (MCTAGS) on a High-Mobility Multipurpose Wheeled Vehicle (HMMWV) or 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 MP-MNLWS will provide commanders with additional options short of lethal force and greater flexibility in implementing rules of engagement with less-restrictive measures.

PROGRAM STATUS

The MPM-NLWS achieved Milestone A in 2004. The Capability Development Document was approved in November 2007. Technology Development Phase contracts were awarded to industry in the third quarter FY10. A Milestone B decision is anticipated in the First Quarter FY2012. The Approved Acquisition Objective is 312 units, with IOC anticipated in the First Quarter FY2016.

Developer/Manufacturer:
To be determined.

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 nonlethal force. The EoF-MM will consist of selected equipment that provides operational capabilities for use during escalation of force situations incurred primarily, but not exclusively, when operating under restricted rules of engagement. The EoF-MM will provide a variety of capabilities for the following requirements:

- Vehicle and Entry control point
- Convoy security
- Crowd control and Detain personnel
- Conduct search
- Clear facilities and Conduct cordon
- Urban patrol
- 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 perimeters or conduct cordons.

OPERATIONAL IMPACT

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

PROGRAM STATUS

EOF-MM Capability Sets will be procured in increments, which will include Equipment Sets outfitted for specific capabilities. The first increment will consist of 78 systems, of which 20 have already been sent in theater to fulfill an Urgent Universal Need Statement. The remaining 58 systems will be fielded throughout FY2011 and will coincide with the disposal of the Force Protection Capability Sets that are presently in service. The capability required for the second increment is currently being developed by DC, CD&I and the quantity and delivery schedule are yet to be confirmed.

Procurement Profile:	FY 2011	FY 2012
EoF-MM:	20	0

Developer/Manufacturer:
Aardvark Tactical Incorporated, Azusa, CA

PART 6: AVIATION

AVIATION STRATEGY

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.

Today, the priority is to replace legacy aircraft — some of which have been flying since the Vietnam War — with far 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 FY11 Marine Aviation Plan is a phased 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 (MAG) and Marine Aircraft Wing (MAW) headquarters. Critical to this effort are our numerous transition task forces leading the way as we transition from legacy aircraft to new platforms.

The Marine Corps transition strategy can be separated into two mutually supportive, but challenging efforts: sustain the legacy fleet, and transition to new aircraft. The FY11 Marine Aviation Plan is our roadmap for navigating through these challenges, to ensure our continued capability to carry out all six functions of Marine aviation: Assault Support, Anti-Aircraft Warfare, Offensive Air Support, Electronic Warfare, Control of Aircraft and Missiles, and Aerial Reconnaissance. This living document outlines the Marine Corps' multiyear transition plan to a dramatically changed fleet, and provides details for:

- Legacy aircraft modernization
- Marine Aviation Command and Control System (MACCS) sustainment
- Aviation Ground Support systems sustainmentF-35B Short TakeOff / Vertical Landing Joint Strike Fighter (STOVL JSF)
- MV-22B Osprey
- H-1 upgrades program (UH-1Y and 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
- Common Aviation Command and Control System (CAC2S)
- AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR)
- Composite Tracking Network

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 around 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 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, including the missile warning system, countermeasures dispensing system and a 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 in FY2017.

CH-53E SUPER STALLION

The heavy-lift CH-53E Super Stallion helicopter has been key to the assault support function of Marine aviation. However, the CH-53E cannot support the range and payload requirements of future Marine Corps 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, the CH-53K — focusing on reliability, maintainability, cost of ownership, and performance — is required to meet MAGTF and joint warfighting requirements during the next 25 years.

AV-8B HARRIER

The AV-8B Harrier remains in the fight. The Open Systems Core Avionics Requirement (OSCAR), which updates obsolete software and computer equipment, has been improved to increase the weapons and sensors capabilities of this legacy aircraft. OSCAR with Operational Flight Program (OFP) H6.0 enables the AV-8B to carry the Digital Improved Ejector Rack (DITER) as part of its suspension equipment. This allows the Harrier to carry multiple Joint Direct Attack Munitions (JDAMs), and, coupled with recent LITENING carriage expansion in H5.0, which includes the centerline station, this will allow for a more robust and diverse weapons mixes. In addition to the DITER, the AV-8B will upgrade to the 21X radar tape and receive a fully integrated ALE-47 countermeasures system.

Once OSCAR was fielded, every follow-on OFP included the AIM-120B Advanced Medium Range Air to Air Missile (AMRAAM) as part of the authorized AV-8B weapons inventory. The addition of the MV-22 Osprey to the ACE, and the limited defense capability of the amphibious task force, cemented the requirement for a beyond-visual-range missile for the U.S. Marine Corps Harrier. During H6.0 Operational Test, the AIM-120B will be validated in order to expand the envelope with the 21X radar tape and permanently added to the inventory of air-to-air weapons. AMRAAM allows the AV-8B to engage enemy air threats at a much greater range than does its AIM-9 Sidewinder missile, and provides a potent deterrent.

The upgrades to the LITENING pod continue to improve the AV-8B's lethality and survivability. The 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. The "Plug and Play II" assemblies provide the pod with the Combat Information Network Application System (CINAPS), which stores imagery and video that can be accessed through the Combat Net Radio System (CNRS). Additionally, Plug and Play II pods are outfitted with a digital video recorder to replace the obsolete 8mm tape recorder. The Marine Corps continues to incorporate new radios and waveforms within the pod that will pave the way for an aircraft data link, allowing the pod to act as a digital bridge in a larger network and to transmit stored images and streaming video over greater distances.

F/A-18 HORNET

The F/A-18 will continue to see tactical enhancements and service life management, as it will remain active for the next 12 years. The F/A-18 A-D aircraft will require service life extensions and upgrades to bridge the gap to the complete fleet of fifth-generation jets, the F-35 Joint Strike Fighters. In early 2011, the legacy Hornet is limited to 8,000 flight hours. Scheduled high flight hour inspections will increase the life span by 600 hours, while further inspections and maintenance through a service life extension program will allow the legacy Hornet to achieve 10,000 flight hours. Through the Hornet Integrated Master Plan, individual aircraft will be monitored and placed into scheduled depot-level maintenance in order to allow fleet squadrons to maintain their required aircraft on the flight line throughout the year. Although wing-root life expectancy, landings, and catapults and traps are all concerns, increasing aircraft flight hours is now the most critical aspect of ensuring specific F/A-18A-D aircraft remain operational to scheduled sundown in FY2023.

These legacy Hornets are relevant in tomorrow's fight, however. In order to ensure responsive Marine aviation strike-fighter capability, the baseline Hornet needs to be equivalent to the Lot XXI F/A-18. Engineering Change Proposal 583 upgrades provide Lot F/A-18A+/C with a NACES ejection seat, the Joint Helmet Mounting Cuing System, Multifunctional Information Distribution System/Link-16, the APG-73 radar, and the ability to deliver current and future weapons. Marine F/A-18s will also incorporate upgrades to the in-service ALR-67v(3) radar warning receiver, the ALQ-214 and ALE-47 electronic weapons suite, and the APG-73 radar. As with the AV-8B, the LITENING pod continues to provide the F/A-18 with a superior targeting capability.

EA-6B PROWLER

EA-6B Prowlers are an essential, combat-proven element of the MAGTF and joint force. Their primary mission is electronic warfare (EW), which includes electronic attack (EA), electronic warfare support (ES), and electronic protection

(EP). EA-6B squadrons are in the process of transitioning to the Improved Capabilities III (ICAP III) weapon system. The core of the ICAP III is the ALQ-218 digital receiver system, the same system the Navy adapted for the new EA-18G Growler. This is the first significant receiver upgrade to the Prowler since its fleet introduction in 1971, and makes advanced signal targeting possible. These new receivers and the additional computing capacity in ICAP III enable improved aircrew situational awareness, more precise and effective jamming, increased readiness and availability, and a reduction in life cycle costs.

The Marine Corps received its first ICAP III in April 2010 and plans to complete the transition to an all-ICAP III force by FY 2012. During this time the Marine Corps will retain its four operational squadrons (VMAQs) with Primary Mission Aircraft Inventory (PMAI) of 20 Prowlers. This structure will be maintained into 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 airborne and ground-based systems. 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 control the EM spectrum at the time and place of his choosing. For the next decade, however, the EA-6B ICAP III will be the cornerstone of MAGTF EW and will be joined over time by capabilities fielded on UAS, fixed- and rotary-wing aircraft and the Joint Strike Fighter, as well as in the Radio Battalions and other units within the GCE.

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 expeditionary operations. The MWSGs and Marine Wing Support Squadrons (MWSSs) are undergoing several equipment and structure refinements and capability enhancements to plan and deploy rapidly and to provide AGS to the ACE commander's 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, military police resident in the Marine Aircraft Wing enhances security and law-enforcement capability should the ACE be engaged at operational sites.

AGS COMMAND AND CONTROL

Key to the effective sustainment of the ACE and MAGTF fight will be greater 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 will 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 firefighting (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

METEOROLOGICAL SUPPORT

Meteorological and Oceanographic (METOC) Functional Realignment: Weather services capability will move seamlessly from the MWSG to the MACG while continuing to provide precise weather information and forecasts to the MAGTF. This shift will align functionally our METOC support capabilities and ensure tactical capabilities become fully integrated with C4I architectures. METOC capabilities will deploy as forward detachment units and will enhance a commander's ability to support forward-deployed units through networked METOC capabilities. Additionally, this will enhance the commander's battlespace awareness through environmental sensing capabilities for integration onto the common operating picture (COP).

Meteorological Mobile Facility Replacement – Next Generation: The Meteorological Mobile Facility Replacement-Next Generation (METMF(R)–NEXGEN) replaces the legacy METMF(R) weather van to provide a modular and scalable meteorological capability throughout the battlespace. It uses an

HMMWV-mounted shelter outfitted to provide real-time environmental sensing and weather data in support of the MAGTF. The METMF(R) NEXGEN will enable the METOC forecaster to turn environmental data into actionable intelligence, which will in turn facilitate timely operational decision-making.

Regional Meteorological Centers: The Regional Meteorological Centers (RMC) became operational in FY 2009 and provide centralized METOC support via consolidated hub architectures on each coast (MCAS Cherry Point, NC and MCAS Miramar, CA). Advanced technology and capabilities allow the RMCs to distribute meteorological forecasts, weather warnings and advisories, 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 METOC support during garrison and ACE commands during training operations.

AVIATION TRAINING SYSTEM (ATS)

DESCRIPTION

Today's dynamic operational environment requires Marine aviation to focus its training more effectively and efficiently in order to sustain the highest levels of combat readiness. ATS integrates Marine aviation training processes and structures into a single, unified, and holistic system that spans all communities. ATS is a completely integrated training system that links training cost with readiness in order to provide the MAGTF commander with combat-ready units.

SCOPE

ATS integrates and coordinates policy, manpower, equipment, and fiscal requirements of post-initial accession training for Marine aviation officers and enlisted personnel. The system also integrates initial accession aircrew training (Core Skill Introduction) for aviation units that conduct platform specific aviation training (for example, the Fleet Replacement Squadron or the KC-130J Aviation Training Unit). ATS concepts, processes, and programs are applicable to all current and future Marine aviation training programs, including naval or joint programs in which Marine aviation participates.

FOCUS

ATS will integrate concepts, processes, and programs for training that will institutionalize operational excellence reflected in increased combat readiness, decreased costs of training and preservation of personnel and assets. ATS will:

- Provide operational commanders with a current, responsive, holistic and relevant training system for aircrew, aircraft maintenance, aviation ground support, and C2 personnel
- Assist in the standardization of Marine aviation communities
- Develop concurrent management processes to ensure the training system (curriculum, courseware, and training devices) remains relevant
- Address training and safety issues through Systems Approach to Training-derived curricula and improved use of Operational Risk Management/Crew Resource Management/Risk Resource Management through risk mitigation
- Stand up Marine Aviation Training Systems Sites (MATSS) at MCAS to facilitate the ATS program.

PROCESS

Training Management: Training is managed through the use of tools and processes that provide a common training experience across the ATS, regardless of station, platform or system. Elements that support the management and integration of training information are Training Management Systems and Learning Management Systems.

Learning Management Systems: The Training Management Process (TMP) provides an effective forum for the operating forces to identify their training issues as the impetus for requirements generation. The TMP determines common solutions to training issues, eliminating redundant "stovepipe" solutions that are wasteful and inefficient.

Standardization and Evaluation: The process of training toward and achieving certifications, qualifications

and designations is standardized and consolidated under the ATS. Standardization of aviation training and evaluation supports commanders by integrating and improving existing flight leadership, combat leadership and Naval Aviation Training and Operating Procedures Standardization (NATOPS) and instrument programs. Standardization of training systems is facilitated by the Concurrency Management Process and Training System Certification.

Risk Mitigation: Risk is inherent in aviation operations, controlled and managed through awareness and aggressive training. Advancements in training devices allow for expansion of experience through exposure to real world scenarios, and require aircrew to exercise risk management skills without exposing the aircrew or aircraft to risk of actual loss. The MATSS provides a venue that supports the instruction of the academic portions of risk management and aviation safety programs by experienced instructors. The skills to conduct risk management are found in the CRM, ORM, and RRM programs. These programs are integral to ATS and their principles are reinforced during all phases of training.

MARINE AVIATION TRAINING SYSTEM SITES

Implementation of ATS at each MAW is through MATSS, the focal point of ATS execution under the operational control of the Marine Aircraft Wing. It is product-, resource- and facility-intensive. ATS products/resources available at the MATSS include simulators and training devices, web-based training management systems, academic courseware, electronic classrooms, and the military, civilian and contractor manpower to support the training system. The MATSS facilitates simulator and academic resource use, standardization and evaluation, and training relevant and responsive to needs of the fleet. With increased USMC and joint-level awareness for ATS, leveraging common solutions across the various platforms, communities and services will result in significant cost savings, freeing funds for other requirements to enhance training across Marine aviation and the MAGTF.

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 takeoffs 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 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 aviation — Assault Support, Anti-Aircraft Warfare, Offensive Air Support, Electronic Warfare, Control of Aircraft and Missiles, and Aerial Reconnaissance — in mind, the F-35B will ensure the MAGTF commander can maneuver in time and space at his discretion, and will deliver kinetic, non-kinetic, and intelligence, surveillance and reconnaissance (ISR) resources (scaled appropriately), precisely when and where they are needed.

The Joint Strike Fighter family of aircraft includes three variants: the B-model short takeoff, vertical landing variant for the Marine Corps; the A-model conventional takeoff and landing variant for the U.S. Air Force; and the C-model 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 and 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 new aircraft.

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 EW — electronic surveillance and electronic attack.

The requirements for the JSF are focused on readiness, the combined-arms concept, expeditionary capability, and expeditionary maneuver warfare. The F-35B will be a MAGTF integrator, bringing capabilities and options to the decision-maker. The JSF will incorporate advanced mission systems, including the Active Electronically Scanned Array (AESA) radar, Electro-Optical Targeting System (EOTS), and Distributed Aperture Sys-

tem (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. There is no intention to have a dedicated mission-specific EF-35; the NGJ is intended to be fielded on any variant of the more than 2,400 U.S. F-35 aircraft to be acquired by all Services. (The Marine Corps' requirement is 420 aircraft.) 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.

The Marine Corps' F-35B will be capable of operating from aircraft carriers, L-class amphibious assault ships, and main operating bases and austere sites ashore. (The Italian Navy will also employ the STOVL variant on board their aircraft-capable ships.) 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.

PROGRAM STATUS

The JSF is a joint program with the U.S. Air Force, U.S. Navy, U.S. 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. The JSF Systems Development and Demonstration (SDD) phase is scheduled to last until 2016. 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 and executed its first vertical landing in March 2010. In early 2011, BF-1, BF-2, BF-3, and BF-4 are at NAS Patuxent River as our program builds to a total of five aircraft in developmental flight test. The Marine Corps' robust developmental test schedule will be followed by operational test during which the design will be evaluated for operational suitability and employment with our operating forces.

Procurement Profile:	FY 2011	FY 2012
Quantity:	13	6

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

Propulsion: Pratt & Whitney and General Electric

JOINT STRIKE FIGHTER (JSF) TRANSITION PLAN

The Corps will employ the F-35B to support the six functions of Marine Corps aviation: Assault Support, Anti-Aircraft Warfare, Offensive Air Support, Electronic Warfare, Control of Aircraft and Missiles, and Aerial Reconnaissance. 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 those of legacy aircraft.

The VMFAT-501 Warlords, the first Marine Corps JSF STOVL training squadron, stood up on 2 April 2010 as part of the JSF Integrated Training Center at Eglin AFB, Florida. VMFAT-501 will be assigned to 2d Marine Aircraft Wing for operational control and administrative control, but the Warlords will maintain a command training relationship and co-location with the U.S. Air Force 33d Fighter Wing. Students are expected to start training in 2012. The Operational Test and Evaluation (OT&E) detachment stands up at Edwards AFB during 2012 and commences Block 2.0 OT&E in 2013.

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 all models of the F/A-18 Hornet. All legacy tactical strike aircraft platforms should be retired by 2024.

MV-22B OSPREY

DESCRIPTION

The MV-22B Osprey tilt-rotor aircraft — the only such operational military aircraft in the world — is an advanced-technology vertical/short takeoff and landing (VSTOL), 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 the Marine Corps, Navy, and Air Force.

The MV-22B joins the Joint High Speed Vessel 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; medium-lift assault support; aerial delivery; tactical recovery of aircraft and personnel; air evacuation; and rapid insertion and extraction.

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 ninety degrees, transitioning the MV-22 into a high-speed, high-altitude, fuel-efficient turboprop 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 forces. The Osprey has a 325-nautical mile combat radius, can cruise at 262 knots, and is capable of carrying 24 combat-equipped Marines or a 12,500-pound external load. With a 2,100 nautical-mile single-aerial refueling range, the aircraft also has a strategic self-deployment capability.

PROGRAM STATUS

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 2011, 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 2011, 84 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 FY2012.

Procurement Profile:	FY 2011	FY 2012
Block C:	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 new four-bladed, all-composite rotor systems coupled with a sophisticated, fully integrated, state-of-the-art cockpit in each model aircraft. The UH-1Y and AH-1Z also incorporate new performance-matched transmissions, a four-bladed tail rotor, four-bladed drive system, and upgraded landing gear. Additionally, structural modifications to the AH-1Z provide the aircraft six weapons stations — two more than on the AH-1W. The advanced cockpit common to both 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 (commonly referred to as "Yankee") and the AH-1Z Viper (commonly referred to as "Zulu") have approximately 84 percent identical components, which significantly benefits MAGTF 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 ends 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 – 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 — is a top Marine Corps aviation priority. 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 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, which 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 a Marine Corps of 202,000 personnel while mitigating the operational shortfalls caused by aircraft attrition. New squadrons are being established in support of the Commandant's "202K" Grow-the-Force 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; and HMLA-567 will stand up at MCAS Cherry Point in April 2011 and will perform duties as the East Coast Tactical 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

Forty-three production aircraft (31 UH-1Ys and 12 AH-1Zs) were delivered through the end of FY 2010. The UH-1Y achieved IOC on 8 August 2008 and received its favorable full-rate production decision on 17 September 2008. The AH-1Z completed operational evaluation in July 2010 and is on schedule to achieve IOC in second quarter FY2011. The H-1 upgrades overall procurement objective is 160 UH-1Ys and 189 AH-1Zs.

Procurement Profile:	FY 2011	FY 2012
Quantity:	31	26

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

Integrated Cockpit: Northrop Grumman, Woodland Hills, CA

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

KC-130J HERCULES

DESCRIPTION

The KC-130 is a versatile four-engine tactical aerial refueler and assault-support aircraft. It is the only long-range, fixed-wing assault-support capability organic to the Marine Corps. The KC-130J, in addition to its increase in speed (+20 percent) and range (+35 percent) compared to the legacy KC-130T, 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, a Dowty R391 advanced-technology six-bladed propeller system, and a 250-knot cargo ramp and door, providing the MAGTF commander with a state-of-the-art, multi-mission, tactical aerial-refueler/assault-support transport asset to 2025 and beyond. All of the active forces' legacy KC-130 aircraft have been replaced with KC-130Js. Once the reserve squadrons have transitioned to the J model, a transition that begins in FY2014 and finishes in FY2029, the Marine Corps will have one type/model/series tactical aerial-refueler/assault-support aircraft.

OPERATIONAL IMPACT

The KC-130J provides 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 support; battlefield illumination; tactical aeromedical evacuation; and tactical recovery of aircraft and personnel support.

In response to an Urgent Universal Need, the Marine Corps has integrated a bolt-on/bolt-off Multi-Sensor Imagery (MIR)/Weapon Mission Kit for in-service KC-130J aircraft. This kit, known as Harvest HAWK, rapidly reconfigures the KC-130J aircraft into a platform capable of performing persistent MIR, targeting and delivery of precision fires using Hellfire and Griffin munitions. Future capability is planned to incorporate high-volume suppressive fires from a 30mm cannon. Harvest HAWK is designed as a complementary capability that takes advantage of the aircraft's extended endurance and will not detract from the KC-130J's primary mission of air-to-air and ground refueling. This force multiplier is well suited to the mission needs of the forward-deployed MAGTF. The KC-130J brings increased capability and mission flexibility to combat planning and operations.

PROGRAM STATUS

The Marine Corps KC-130J requirement (active and reserve) 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 56. Initial Operational Capability was achieved in 2005.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	1

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

CH-53K HEAVY LIFT HELICOPTER

Artist Rendition

DESCRIPTION

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 three times the lift capability of the CH- 53E under the same environmental conditions while fitting within the same shipboard footprint. The CH-53K will provide unparalleled lift capability under high-temperature and high-altitude austere conditions, similar to those found in Afghanistan, thereby expanding greatly the commander's operational reach. It is the only shipboard-compatible helicopter that can lift 100 percent of Marine Corps equipment from amphibious shipping to inland objectives at high altitudes and in hot weather.

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. The CH-53K is designed to reduce logistics shipboard reduce operating cost per aircraft, reduce direct maintenance man hours-per-flight hour, and increase survivability compared to the CH-53E.

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 in-service CH-53E. The CH-53E's fully burdened operating costs are estimated to exceed $27,000 per flight hour in 2016. The performance improvements will enable the vertical insertion of two combat-loaded up-armored HMMWVs, one Light Armored Vehicle, or three 9,000-pound sustainment loads to three separate landing zones.

PROGRAM STATUS

In 2010 the CH-53K program conducted its Critical Design Review. Its critical technologies have reached their requisite maturity level and the aircraft is projected to meet or exceed all of its Key Performance Parameters. The team will begin assembling the first test aircraft in March 2011.

Developer/Manufacturer:
Sikorksy Aircraft, Stratford, CT

UNMANNED AIRCRAFT SYSTEMS (UAS)

DESCRIPTION

The Marine Corps has employed UAS since 1986. Since 2001, the demand for dedicated aerial reconnaissance aircraft has grown exponentially, and UAS have played a critical part in supporting the aerial reconnaissance requirement. The Marine Corps has refined its UAS requirements and CONOPS, and has begun the procurement and fielding of improved systems at every level of the MAGTF.

The Marine Corps UAS CONOPS divides UAS requirements into three levels that coincide with the various echelons of command in the MAGTF. The larger and more capable systems support higher levels of command, whereas the smaller but more numerous systems directly support lower tactical units. Requirements are:

- Marine Corps Tactical UAS (MCTUAS): the in-service system is RQ-7B Shadow
- Small Tactical UAS (STUAS): the in-service system is RQ-21 Integrator
- Small UAS (SUAS): the in-service system is RQ-11B Raven

OPERATIONAL IMPACT : MCTUAS

As the largest MAGTFs, the MEF and MEB are supported by MCTUAS, the largest of our UAS systems. The Marine Corps currently supports this requirement with the RQ-7B Shadow UAS. The first system was deployed with VMU-1 to support OPERATION IRAQI FREEDOM in September 2007. Employing electro-optical and infrared (EO/IR) sensors, communications relay payloads and laser designators, commanders on the ground have increased visual and communications access within their areas of responsibility. The VMU squadron supports commands with route reconnaissance, fires integration and coordination as well as with force-protection enhancers prior to, during, and after their missions.

PROGRAM STATUS : RQ-7B SHADOW

Programmed upgrades for the RQ-7B include TCDL (Tactical Common Data Link) and a UGCS (Universal Ground Control Station) that will increase joint interoperability with other aircraft, UAS, and data systems common within DoD. Procured as a near-term solution to shortfalls in the older RQ-2B program, the RQ-7B continues to provide near-term capabilities in support of the MAGTF. Upgrades to the RQ-7B are planned through FY2016. These upgrades will smooth transition to a larger (Group-4) UAS that will to provide the MAGTF with full strike, electronic warfare, and signals intelligence capabilities on board a faster UAS platform with greater endurance and also maintain an expeditionary support footprint.

Procurement Profile:	FY 2011	FY 2012
Systems/Air Vehicle Quantity:	13/52	13/52

OPERATIONAL IMPACT : STUAS

The MEU and the infantry regiment are supported by STUAS. These UAS and personnel are sourced as detachments from VMU squadrons in the Marine Aircraft Wings. These systems are designed to provide reconnaissance, communications relay and target acquisition. The Marine Corps contracts UAS services for this requirement under an ISR services contract with Insitu Inc. Under a fee-for-services construct, the ISR services contract currently employs the Scan Eagle UAS.

PROGRAM STATUS : RQ-21A INTEGRATOR

The Marine Corps has selected the RQ-21A Integrator (Insitu Inc.) as a government-owned material solution for this requirement, and we are immediately fielding this system in 2011 under an Early Operational Capability (EOC). As 32 systems are fielded, they will begin to replace the remaining contract ISR services in OPERATION ENDURING FREEDOM. The program recently completed source selection and is planned for LRIP the Fourth Quarter FY2012 and FRP and IOC in the Fourth Quarter FY2013.

Procurement Profile:	FY 2011	FY 2012
Systems/Air Vehicle Quantity:	0/0	0/0

OPERATIONAL IMPACT : SUAS

Battalion-level units across the Marine Corps are supported by their own organic SUAS. These UAS systems are small, hand-launched and highly mobile, each consisting of three air vehicles capable of performing aerial reconnaissance with EO or IR sensor within a radius of six nautical miles. SUAS are organic to battalion-size units and allow commanders to provide immediate aviation support to their own forces in the form of route reconnaissance, surveillance, fire direction, deception and harassment, security, and force-protection missions. After-action reports from Marines using these systems in combat reflect their desire to improve fielding, training, and capability for this organic aviation asset.

PROGRAM STATUS : RQ-11B RAVEN

The RQ-11B Raven (AeroVironment Inc.) is the current program of record. In 2008, 467 RQ-11 systems began replacing all the older RQ-14 Dragon Eye (135 systems). The Marine Corps has additionally purchased limited quantities of the smaller Wasp III UAS (AeroVironment Inc.) to perform a user assessment for its possible addition to the UAS Family of Systems.

Procurement Profile:	FY 2011	FY 2012
Systems/Air Vehicle Quantity:	467/1,401	467/1,401

OTHER UAS APPLICATIONS

Cargo UAS

Cargo UAS has been added as an initiative to enhance our assault support capabilities and to reduce the vulnerability of ground logistics supporting Marines stationed at remote combat outposts. Contract cargo UAS service will be fielded in 2011, followed by a formal program of record that by FY2016 will provide the MAGTF with a UAS system capable of cycling five tons of supplies between a support base and remote outpost within a 24-hour period.

Electronic Attack and UAS

The Marine Corps will incorporate an EA capability into current and future UAS platforms, partly to address the eventual retirement of EA-6B Prowlers. This EA capability in UAS will comprise 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-6B) and make electronic warfare ubiquitous across the battlespace.

OPERATIONAL SUPPORT AIRLIFT (OSA)

OSA aircraft provide time-sensitive air transport of high-priority passengers and cargo between and within a theater of war, and execute short-notice, time-critical logistical air missions, scalable to complement the economical and efficient use of tactical platforms. This frees up front-line tactical squadrons for higher-order missions and tasks, thereby serving as a combat multiplier for MAGTF, joint force, and regional combatant commanders. OSA aircraft provide airlift in support of national defense, humanitarian assistance and disaster relief, theater security cooperation and engagement with US allies.

Based on proven civil designs, these Marine Corps assets are 27 commercial-variant aircraft, ranging in size from an eight-passenger light twin-engine turboprop to 90-passenger jets. The Marine Corps operates four different types of aircraft to meet its operational support airlift requirements:

- C-20G Gulfstream IV
- C-9B Skytrain
- UC-12B/F/W King Air
- UC- 35C/D Citation 560 Ultra and Encore

Marine Corps UC-35s are forward deployed in Southwest Asia, providing invaluable daily support to the component commander and relief to MAGTF tactical aircraft by moving personnel and cargo throughout the theater. OSA aircraft have sufficient tactical radios to ensure integration with MAGTF and joint operations. UC-12W and UC-35D aircraft have been equipped with aircraft survivability equipment to detect and defeat enemy surface-to-air infrared missiles.

Marine OSA supports the MAGTF directly at combined-arms 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.

The acquisition of low-risk, commercial-off-the-shelf aircraft is a cost-effective way to provide MAGTF commanders relevant and sustainable operational support. OSA aircraft provide swift, effective, short-notice, time-critical logistical air support, with aircraft flown by Marine aviators and fully integrated into MAGTF operations.

PROGRAM STATUS

The Marine Corps has a Service-endorsed OSA Master Plan, developed to provide MAGTF commanders with the right mix of the right aircraft to ensure time-sensitive movement of personnel and cargo. The plan articulates deliberated OSA aircraft recapitalization to modernize the Fleet to meet current and future needs, and prescribes a minimum quantity of 27 aircraft of four basic aircraft types.

The C-9B is out of production, and is now 35 years old. A suitable replacement would provide an increase in capabilities and a reduction in operating costs. The replacement aircraft must have the ability to transport larger payloads further distances.

The C-20G is a Gulfstream G-IV aircraft, manufactured in Savannah, GA. Efforts to install ASE equipment are underway.

The UC-35C/D aircraft are manufactured by Cessna Aircraft in Wichita, KS. The UC-35D aircraft are having ASE equipment installed, as funds are made available.

The UC-12B/F aircraft were made by Beechcraft Corporation, and average 27 years of age. They are being replaced by the UC-12W, which is a King Air 350ER. The UC-12W is manufactured by Hawker Beechcraft Corp, in Wichita, KS. The Marine Corps received six UC-12W aircraft in FY2010. Integrated Developmental Test was completed in August 2010. The aircraft achieved Initial Operational Capability in the Fourth Quarter FY2010. The procurement objective is 12 aircraft. Funding is being sought for remaining six aircraft.

Procurement Profile:	FY 2011	FY 2012
UC-12W	2	0

Developer/Manufacturer:
Hawker Beechcraft Corporation, Wichita, KS

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 meeting today's readiness needs. Marine aviation logistics provides organizational and intermediate levels of aviation maintenance, supply, ordnance, and avionics in support of the ACE as a key component of the MAGTF. The Naval Aviation Enterprise's (NAE) continuous process improvement strategy — End-to-End Alignment (E2E) and AIRSpeed — is the key enabler to modernizing the time-tested Marine Aviation Logistics Support Program (MALSP) and to providing the foundation for improving current readiness.

Current Readiness (CR): Marine aviation commanders and leaders, in concert with the Naval Aviation Enterprise, are responsible for aligning and managing the key processes supporting manning, equipment, and training to readiness levels that are necessary to generate core-competent units for warfighting missions. The process management decisions implemented by the TMS team lead through CR, with detailed analysis, support attainment and sustainment of near- and long-term Marine aviation readiness goals and institute best practices that provide effective training, qualified personnel, and efficient maintenance. The CR process links all decision-makers horizontally so that problems can be solved cross-functionally.

Marine Aviation Logistics Support Program II (MALSP II): Marine Aviation Logistics Support Program II (MALSP II) is the expeditionary logistics solution for Marine aviation. It increases Marine aviation's ability to deploy, employ, sustain and redeploy rapidly to and from austere regions. MALSP II implements a demand-pull system utilizing logistics nodes across the chain that includes: the parent Marine Aviation Logistics Squadron, en-route support base (ESB), main operating base, and forward operating base. By applying the NAE E2E/Airspeed methodologies, 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 2010, the Marine Corps established an ESB in Bahrain to evaluate the MALSP II concept of operations. This proof of concept employs E2E/AIRSpeed methodologies in support of select aviation aircraft material support across the logistics nodal chain. In addition, MALSP II also introduced the first release of its information technology (IT) functionalities, called the Expeditionary Pack-Up Kit (EPUK). Encompassing both hardware and software, EPUK is a critical IT capability to MALSP II, allowing near-real time satellite transaction for order, issue, stow, and receipt of aircraft parts requisitions. It is currently undergoing its field use evaluation. Upon completion, EPUK will be fielded to the ESB in support of future MALSP II proofs of concept.

GROUND/AIR TASK-ORIENTED RADAR (G/ATOR)

DESCRIPTION

The AN/TPS-80 G/ATOR is a three-dimensional, expeditionary, short-/medium-range multi-role radar capable of detecting low-observable, low-radar cross section targets such as rockets, artillery, mortars, cruise missiles, and unmanned aerial systems. The G/ATOR is being developed and fielded in three increments and will be employed by the Marine Air Ground Task Force (MAGTF) across the range of military operations. The three increments will cover both aviation and ground missions and will replace three in-service legacy radars and the functionality of two systems already retired.

Increment I is the Air Defense/Surveillance Radar. It provides real-time radar measurement data to the Tactical Air Operations Center (TAOC) through the AN/TYQ-23(V)4 Tactical Air Operations Module, AN/TSQ-269 Mobile Tactical Air Operations Module (MTAOM), Composite Tracking Network (CTN), and the Common Aviation Command and Control System (CAC2S). Increment I will have the ability to function as a Short-Range Air-Defense (SHORAD) radar with the ability to provide fire quality data to a future Ground-Based Air-Defense (GBAD) system.

Increment II will fill the Ground Weapons Locating Radar (GWLR) functions and provide counter-battery/target acquisition for the ground combat element. Increment IV provides an expeditionary airport surveillance radar capability to the MAGTF.

G/ATOR comprises three major subsystems: (1) the Radar Equipment Group (REG); (2) Communications Equipment Group (CEG); and (3) Power Equipment Group (PEG). The REG is an integrated radar and trailer combination towed behind an MTVR. The CEG is palletized communications and radar control systems transported in the armored M1151A1 HMMWV. The PEG is a pallet assembly containing a tactical generator, cables, and ancillary equipment transported in the bed of the MTVR.

The REG, CEG, and PEG without prime movers are considered mission-essential equipment and are rapidly deployable via helicopter/tilt-rotor, KC-130 or ground vehicles during the first stages of operations. This system 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 warfighting functions it supports will make it a highly valued asset to the MAGTF commander.

OPERATIONAL IMPACT

G/ATOR's expeditionary, multi-role capabilities represent the next generation in ground radar technology and will provide crucial enhancements to warfighting capabilities for Marine Corps and joint force commanders: greater range, greater detection and target classification against new and evolving threats including low-observables, and greater performance against enemy countermeasures. The G/ATOR will provide increased mobility, reliability and improved situational awareness with the ability to act as the landward extension of Sea Shield, enabling Sea Strike against deeper inland targets.

PROGRAM STATUS

The AN/TPS-80 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 69 units.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	1-EDM*

*Engineering Development Model

Developer/Manufacturer:
Northrop Grumman Electronic Systems, Linthicum, MD

AVIATION COMMAND AND CONTROL (AC2) FAMILY OF SYSTEMS AND MARINE AIR COMMAND AND CONTROL SYSTEM (MACCS) SUSTAINMENT

DESCRIPTION

The Aviation Command and Control (AC2) Family of Systems (FoS) and the MACCS legacy sustainment efforts support the systems employed by MACCS tactical agencies and operational facilities, each having different functions, tasks and equipment suites. These agencies are fielded and supported by squadrons within the MACG in support of the ACE. The tactical agencies are: the Tactical Air Command Center (TACC), the Tactical Air Operations Center (TAOC), and the Direct Air Support Center (DASC).

The core AC2 FoS consists of the CAC2S (IOC FY2011), G/ATOR (IOC FY2016), and the fielded AN/TPS-59 Radar and the Composite Tracking Network (IOC FY2011). MACCS legacy systems in the sustainment life cycle include: the AN/TYQ-23(V)4 Tactical Air Operations Module (TAOM); AN/TYQ-101 Communications Data Link System (CDLS); AN/MRQ-12(V)4 Communications Interface System (CIS); AN/TYQ-87(V)2 Sector Anti Air Warfare Facility; AN/UYQ-3B Direct Air Support Central/Airborne System (DASC/AS); and the AN/MSQ-124 Air Defense Communications Platform (ADCP)

In addition to the core MACCS programs, the Sustainment Program Office has management responsibilities for the Link Management System Multi-Tactical Data Link (TDL) (LMS-MT), AN/GRC-171B(V)4 Ultra High Frequency (UHF) Radio, AN/URC-107(V)10 Joint Tactical Information Distribution System (JTIDS) Terminal Radio, AN/USQ-140(V)11(C) Multifunctional Information Distribution System Low Volume Terminal, AN/TYQ-145 Beyond Line of Sight Gateway (BLOS-GW), and AN/GRC-256 High Frequency Radio. External influences include the Marine Corps wide modernization of radios, cryptological devices, high mobility multi-purpose wheeled vehicles, trailers, and Environmental Control Units (ECUs).

MACCS sustainment is responsible for one program that is in the production phase. The AN/TSQ-269 Mobile Tactical Air Operations Module (MTAOM) is slated for Initial Operational Capability (IOC) in FY2011.

OPERATIONAL IMPACT

The MACCS Sustainment Program Office ensures that the TACC, TAOC, and DASC systems remain ready, relevant, and capable until Full Operational Capability (FOC) of CAC2S. This is accomplished through selected engineering initiatives, software sustainment, and maintenance of the appropriate logistics resources. In doing so, the MACCS FoS Sustainment program will continue to support the warfighter.

PROGRAM STATUS

The systems of the TACC, TAOC, and DASC, with the exception of the MTAOM, are in the operations and support phase of their life cycles and must be kept relevant, ready, and capable until CAC2S FOC is achieved. The re-baselined CAC2S program schedule has impacted all projected MACCS sustainment system support requirements and program funding as the legacy systems' item-exit dates are extended. Currently, MACCS FoS sustainment will continue until the end of calendar year 2018.

MOBILE TACTICAL AIR OPERATIONS MODULE (MTAOM)

DESCRIPTION

The MTAOM consists of the Sector Anti-Air Warfare's System Server Assembly and other COTS/GOTS components rack-mounted in an S/788-G Lightweight Multipurpose Shelter (LMS) and transported on a M1152 high mobility multipurpose wheeled vehicles. Additional rack-mounted components include Joint Range Extension (JRE) Data Link Translator (DLT), SunAir 9000D 1 Kilowatt HF Radio, AN/GRC-171B(V)4 UHF Radio, AN/VRC-103(V)3 UHF/VHF/ Satellite Communications Radio, AN/ USQ-140(V)11(C) Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), MIDS capable JRE Interface Unit (JIU), and various data link communications modems and encryption devices. MEP and ECUs are provided from an Integrated Tactical ECU and Generator (ITEG) system. Operator stations (up to 20) and associated display equipment are tent-based.

The MTAOM leverages TAOC Pre-Planned Product Improvement Initiatives. These initiatives consist of three key additions to the current suite of equipment. The first of these additions is the AN/ AYK-14 Replacement Computer (ARC) running the Reconfigurable Processor for Legacy Avionics Code Execution capability. The ARC is a Versa Module Eurocard circuit board processor that emulates the AN/AYK-14 computer for processing legacy CMS-2 code. The second addition is the Radar Communications Processor Suite, which allows the integration of non-organic sensors. Tactical Data Links (TDLs) A and B, North Atlantic Treaty Organization Link 1, and the Army Tactical Data Link-1 (ATDL-1) provide the MTAOM the capability to perform missions of the TAOC. The third component is the MIDS capable JIU, which provides the MTAOM with Link 16 data via the JRE system or the MIDS LVT-11.

The operational capacities of a single MTAOM configuration with RCPS are:

- 1 TDL-A (HF or UHF)
- 1 MIDS TDL-J
- 1 Joint Range Extension Application Protocol (JREAP) -C
- 2 JREAP-A
- 4 JREAP-B
- 8 Point-to-point links for TDL-B and ATDL-1, or 1 NATO Link 1
- 20 operator work stations (maximum)

OPERATIONAL IMPACT

The AN/TSQ-269 Mobile Tactical Air Operations Module (MTAOM) provides a mobile system to conduct air C2 and air-defense operations. The MTAOM provides the flexibility for rapid movement and deployment required by the tactical situation and mission. The MTAOM provides mobility not currently available with the TAOM. As with the TAOM, the MTAOM provides interfaces to adjacent and higher commands.

PROGRAM STATUS

MTAOM system transportability and mobility requirements are documented in Change 3 of the TAOM Operational Requirements Document dated 13 Feb 2009. The Authorized Acquisition Objective for MTAOM is 10 systems.

Procurement Profile:	FY 2011	FY 2012
MTAOM	0	0

Developer/Manufacturer:
Naval Surface Warfare Center, Crane Division, Crane, IN

REMOTE VIDEO VIEWING TERMINAL

DESCRIPTION

The Remote Video Viewing Terminal (RVVT) is an Intelligence, Surveillance, and Reconnaissance (ISR) asset that will allow viewing and exploitation of video and metadata from multiple unmanned aircraft systems and manned LITENING pod-equipped aircraft. As a program of record, the RVVT will replace the previous two generations of remote viewing terminals (ROVER and VideoScout) that were fielded through the UUNS process. RVVT will also assume the operations and maintenance of these legacy systems.

OPERATIONAL IMPACT

RVVT provides Marine Forward Air Controllers and Joint Tactical Air Controllers a more complete view of the battlefield by allowing them to view video from various ISR assets that are in their area of operations in a compact portable form-factor. RVVT allows the Marine to view real-time video first hand rather than being told over radio communications, thus enabling the warfighter to delineate more effectively potential threats.

PROGRAM STATUS

RVVT is in the pre-materiel solution analysis phase. The current focus of the program is maintenance and sustainment of the VideoScout systems until the RVVT program of record systems are fielded, in early 2011 scheduled for FY2016. Milestone B is anticipated in FY2013, and Milestone C in FY2014. The Approved Acquisition Objective is:

- VideoScout: 599
- Remote Viewing Terminals: 512

Procurement Profile:	FY 2011	FY 2012
VideoScout	42	0
Remote Viewing Terminals	0	0

Developer/Manufacturer:
Legacy VideoScout: L3 Communications, San Diego, CA

Remote Viewing Terminals:
To be determined

P-19A AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) VEHICLE REPLACEMENT

DESCRIPTION

This initiative replaces the A/S32P-19A Aircraft Crash and Structure Fire Fighting Truck, known as the P-19A. The P-19A was introduced into service in 1984. It had a service life of 12 years and has had multiple depot-level rebuilds.

The P-19A is the Marine Corps' only major Aircraft Fire Fighting Vehicle (FFV). This vehicle is used at Marine Corps Air Stations and forward operating bases. The P-19A FFV Replacement provides rescue and aircraft fire-fighting capabilities to permanent and expeditionary airfields and may also be employed to fight structural fires in support of base camps and as firefighting support to other elements of the MAGTF, at ammunition supply points, fuel distribution points, or hazardous material storage facilities.

The end state is a reliable major aircraft fire-fighting vehicle that supports fixed and rotary aircraft operations through 2038.

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. 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 material/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

P-19A Replacement Initial Operational Capability is planned for FY2016. IOC is achieved when one MWSG has received a complete issue of P-19A replacements; the assigned mechanics and crews have received initial training at the operator/crew, field and sustainment levels; and sufficient repair parts are in place to support operations.

P-19A Replacement FOC is desired by FY 2017 to meet the Approved Acquisition Objective of 176. The program is awaiting final requirements documents to continue with the fielding strategy. P-19 replacement Capabilities Development Document (CDD) has been signed by DC CD&I. Program moving towards a Milestone B decision. CD&I (LID), APX, SYSCOM and I&L may pursue a two-prong fielding strategy — a COTS and a tactical variant.

Procurement Profile:	FY 2011	FY 2012
	0	2

Developer/Manufacturer:
To be determined

PART 7: EXPEDITIONARY LOGISTICS

EXPEDITIONARY LOGISTICS STRATEGY

The intent of the Expeditionary Logistics Strategy is to enhance the effectiveness and lethality of the MAGTF. In order to be relevant to the MAGTF commander, our enhanced logistics capabilities must be responsive to the mission, provide the highest level of certainty, and be controlled by the MAGTF Commander.

Key to improving responsiveness, certainty and control is the continued development and fielding of state-of-the-art Logistics Chain Management (LCM) and Command and Control for Logistics (C2 for Log) systems, complemented by improved processes and organization. Global Combat Support System-Marine Corps (GCSS-MC) represents the Information Technology backbone of modernization efforts, and in concert with other systems, such as MAGTF Logistics Support Systems (MLS2), will provide the MAGTF with an unprecedented logistics advantage.

RESPONSIVENESS

Responsiveness is about being prepared…anticipating what is needed, when and where…so that the Marine Corps can rapidly tailor and deliver the logistical support needed to the MAGTF warfighters.

Our experiences in collaborating, forecasting, and positioning logistics support have underscored several challenges, including: an inability to anticipate and effectively respond to requirements for fairly predictable needs, such as hydraulic fluid and radio batteries; lack of trucks in forward logistics units; a large footprint of supplies ("The Iron Mountain"); and the need to positively track patients in-transit from the point of injury to the point of treatment. Additionally, systems interface with Army and Navy supply chains is sporadic and compounds the difficulty of drawing on in-theater support from joint forces. These and other thorny challenges are addressed by initiatives now reaching the operating forces, with others to follow during the coming years.

Enhancements that the operating forces are starting to see today include logistics decision support tools, such as the Marine Corps Equipment Readiness Information Tool, or MERIT; Common Logistics Command and Control System, or CLC2S; and the Transportation Capacity Planning Tool, or TCPT. These are initial efforts to automate processes previously accomplished via laborious "stubby pencil drills" or locally designed spreadsheets. Another improvement is the packing of shipping containers and pallets in a manner that minimizes handling and repacking of the supplies at locations in the battle space. This innovation, dubbed the "pure pallet" initiative, has placed the burden of assembling these shipments at the beginning of the logistics chain, where the material handling equipment and other personnel and facilities resources are best arrayed to efficiently and effectively build pallets and containers that do not have to be touched again until they reach the ultimate destination.

Additionally, the Forward Resuscitative Surgery System has been proven as a flexible, resuscitative surgery capability that can be quickly configured and erected

to support any tactical medical situation ashore in a forward combat environment, and provide immediate medical life-saving capabilities to support MAGTF operations on a 24-hour basis.

CERTAINTY

Logisticians have been plagued for years by the inability to have visibility of the end-to-end logistics pipeline and provide the requester with an accurate status of their request. We need to improve, and are improving, our ability to provide timely and accurate situational awareness of items and services in the logistics pipeline even when unforeseen actions impact their delivery.

The challenges in the area of certainty all stem from the absence of actionable logistics information and the underlying inaccuracy of logistics data in our myriad logistics information systems. This was magnified during OPERATION IRAQI FREEDOM by the fact our forward combat forces were using the legacy Supported Activities Supply System, (SASSY), Marine Corps Integrated Maintenance Management System (MIMMS) and Asset Tracking for Logistics and Supply System (ATLASS), while the Marine Logistics Command (MLC) was using the ATLASS II+ interim solution that, for all intents and purposes, did not "talk" to these legacy systems. Additionally, the lack of a robust long-range data communications capability within the Logistics Combat Element led to a situation where Iridium telephones using dialup communications speeds of 9.800 bits of data per second — 1980's technology in the private sector— had to be used to register sustainment requests in the supply system when the units could stop to transmit their needs.

An immediate, temporary solution was to return all USMC units to the SASSY/MIMMS/ATLASS common standard, until GCSS-MC can be fielded. Other capabilities being implemented include the Logistics Support Wide Area Network (LSWAN), which is a Very Small Aperture Terminal (VSAT) data communications tool that supports the Battle Command and Sustainment Support System (BCS3) and the Warehouse to Warfighter-Last Tactical Mile system (W2W-LTM). BCS3 represents the capabilities envisioned by the Logistics Combat Element for a common operational picture (COP), supported by the Joint Tactical COP Workstation (JTCW). The Automated Manifesting System–Tactical (AMS-TAC) will ultimately provide the "last tactical mile" in-transit visibility originally envisioned under the Warehouse to Warfighter initiative. Each of these solutions has been developed and fielded, and while we acknowledge they do not completely satisfy all of the visibility requirements of the battlefield and the logistics chain, they are providing enhanced visibility into the location of supplies and equipment while we actively work with developers for more complete and integrated solutions.

CONTROL

Our final focus area is control. The intent is to ensure the MAGTF com-

mander has the ability to command and control the end-to-end Logistics Chain, in order to provide logistics support that is responsive and certain. The capability of the MAGTF to shift the priority of logistics support must be immediate and absolute. Many of the challenges have already been discussed, as they impact the areas of responsiveness and certainty, for example: the lack of long-range and on-the-move data communications assets for the Logistics Combat Element; a supply, maintenance and transportation process and systems that are not well integrated; poor forecasting tools to anticipate the needs of the supported unit; and a lack of visibility into the logistics chain. An additional enhancement that has been fielded to help increase situational awareness and convoy control within the LCE is the Blue Force Tracker (BFT).

LCE COMMUNICATING IN A LESS THAN MATURE THEATER

The LCE requires the communications assets to operate on a digital information-enhanced battlefield. Modular, scalable, and deployable equipment is required to provide the robust bandwidth necessary to transmit voice, data, and video teleconferencing internal and external to the battlefield. In 2011, for example, there is a capability gap within the LCE for line-of-sight, beyond line-of-sight, and on-the-move communications, which degrades the effectiveness of logistics support for MAGTF operations. The following systems are being fielded to satisfy the identified communications gaps in the near and mid terms:

- The LSWAN VSATs are beginning to fill a void in beyond line-of-sight capability within the Marine Logistics Group (MLG). LSWAN VSAT will create a more net-centric environment and mitigate line-of-sight limitations.
- The Command and Control On-the-Move Network Digital Over-the-Horizon Relay (CONDOR), being fielded to the LCE in 2011, will provide on-the-move beyond-line-of-sight data, voice, and video capability within the Marine Logistics Group (MLG).
- The Transition Switch Module (TSM) will provide enhanced multiplexing capabilities and an integrated services digital networks capability. This allows the Logistics Combat Element to provide a secure VTC capability over the circuit switched network.

Voice and data communications equipment — such as Enhanced Multiband multi-mode radio, High Frequency Radio, Tactical hand held radio, integrated intra-squad radio, Enhanced Position Location Reporting System, and the Defense Advanced Global Positioning System Receiver — are currently being fielded to the MLG via supplemental funding to support on-the-move communications requirements. These capability enhancements will bring the Logistics Combat Element up to par with the Air and Ground Combat Elements of the MAGTF.

NEAR-TERM INITIATIVES

The first set of initiatives all pertain to Logistics Command and Control enablers, and contain the emerging technologies implemented during OPERATIONS

IRAQI FREEDOM and ENDURING FREEDOM to improve asset visibility within the logistics chain, to simplify the process for requesting logistics support, or to enhance the data communications capabilities that must be in place to allow these systems to work effectively. These systems have recently been codified and standardized for implementation Corps-wide, and are designated as MAGTF Logistics Support Systems (MLS2).

- Battle Command Sustainment Support System (BCS3)
- Common Logistics Command and Control System (CLC2S)
- Transportation Capacity Planning Tool (TCPT)
- Warehouse to Warfighter–Last Tactical Mile (W2W-LTM)
- Electronic Retrograde Management System (eRMS) – *Navy*
- Bird Track – *Navy*

Use of these systems is enhanced by use of the Marine Corps Equipment Readiness Information Tool (MERIT).

These systems are considered part of the GCSS-MC portfolio's family of systems, and may be replaced by future blocks of the GCSS-MC, as that program matures. Other MLS2 systems may be adopted permanently as complementary systems to GCSS-MC, or be replaced by more capable systems.

LSWAN VSATs are part of the long-term C4 solution for addressing the LCE's communications challenges, and are making a difference today.

The MAGTF Distribution initiative is already well underway within the MEFs, but the underlying policy and enabling directives required to institutionalize this end-to-end logistics chain approach to distribution will take time to complete, particularly given ties to other U.S. Transportation Command initiatives.

The Marine Aviation Logistics Support Program II addresses many of the same logistics challenges within the aviation community that face the rest of the MAGTF. Marine aviation is reshaping its logistics elements to enable agile combat support for future conflicts using the same continuous process improvement tenets that are used by the ground logistics community's logistics modernization efforts.

Automatic Identification Technology (AIT) refers to a suite of technologies, such as bar codes (linear, two-dimensional, and data matrix), radio frequency identification (active and passive), voice recognition, contact memory buttons, integrated circuit cards, and satellite tags. These and other emerging technologies are used to enable and facilitate 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. AIT will pass through a series of Full Operational Capability (FOC) events during the next few years as the range of technologies that are available and required to be implemented to meet the full spectrum of logistics identification requirements within the Marine Corps.

Naval Logistics Integration consists

of 14 separate efforts aimed at better coordinating the activities of the ground logistics system with the Navy logistics system. Among the most promising accomplishments to date have been the use of the Cargo Routing Identification File for shipment routing, the Fleet Industrial Supply Center for shipping, the Priority Management Office for sourcing and expediting urgently needed requirements, and the Advanced Traceability and Control system to handle the shipment and retrograde of reparable repair parts, such as engines and transmissions, in support of deployed MAGTFs. For all of these early accomplishments, NLI will not be full operational capable until all Navy and Marine units can seamlessly receive and provide logistics support among themselves.

MID-TERM INITIATIVES

MAGTF Logistics Integration (MLI) is very similar to Naval Logistics Integration, in that it will only be FOC when all Marine ground and aviation units can seamlessly receive and provide logistics support between themselves using common processes and interoperable systems.

The Materiel Readiness Process Improvement (MRPI) initiatives aimed at realigning supply and maintenance activities within the MAGTF to improve effectiveness are basic concepts supporting the overall logistics modernization effort. The fielding of GCSS-Marine Corps can be viewed as the IOC point for these concepts, since it is the principal technology enabler that will empower logistics modernization throughout the Marine Corps.

Autonomic Logistics (AL) is early in its development, on a cycle that will take several years. The IOC for Autonomic Logistics will roughly correspond to the fielding of weapons systems that incorporate autonomic logistics sensors. This will include current efforts to retrofit the High Mobility Multi-Wheeled Vehicle (HMMWV), Medium Tactical Vehicle Replacement (MTVR), and the Light Armored Vehicle (LAV). Additionally, several new weapons systems are being designed with Autonomic Logistics in mind, such as the Joint Light Tactical Vehicle (JLTV) and the Marine Personnel Carrier (MPC).

GCSS-MC reflects milestones for the initial capability being delivered to the operating forces. Block 1 of GCSS-MC is critical to moving our logistics modernization efforts forward. However, there are future capabilities envisioned under GCSS-MC, which will cover areas including distribution and transportation, health services, and engineering, well into the next decade. The following pages highlight key logistics programs.

LOGISTICS MODERNIZATION

The Logistics Modernization programs are now incorporated under Marine Air Ground Task Force (MAGTF) Expeditionary Logistics. The MAGTF expeditionary logistics initiative includes remaining Log Mod issues, results of the on-going MAGTF Expeditionary Logistics Capabilities-Based Assessment (CBA) and other initiatives that will improve logistics support throughout the MAGTF. These actions are vital to refining and posturing MAGTF logistics to support future Marine Corps operations. The Marine Logistics Group reorganization, Logistics Operational Architecture, MAGTF Distribution, and tasks from the solution-planning directive were completed and continue to be refined within the Expeditionary Logistics CBA and USMC combat development process.

MAGTF expeditionary logistics is an overarching initiative that incorporates people, processes and technology to enhance support to Marine expeditionary forces operating in less than mature theaters. The MAGTF expeditionary logistics initiative supports a balanced, multicapable force which is integral to the vision and strategic direction of the Marine Corps as described in *Marine Corps Vision and Strategy 2025* and supports the logistics concepts in Joint Vision 2010.

To support its statutory responsibility to be an air-ground force in readiness, the Marine Corps must be capable of operating in expeditionary environments and have the logistics capabilities to enable MAGTF operations across the full range of military operations. While the Marine Corps' MAGTFs are self-sustaining, MAGTF expeditionary logistics is envisioned to further expand Marine Corps expeditionary capability and preserve the ability to primarily operate from the sea with an enhanced sea-based maintenance capability, improved logistics chain information management, capabilities to include visibility of joint and multinational information, and a reduced logistics footprint.

The success of the future MAGTF is also dependent upon using improved logistics processes and technologies as integrated resources to better sustain expeditionary forces. Improvements in logistics technology to include the Global Combat Service Support-Marine Corps and the Expeditionary Logistics Technology Tools will significantly enhance supply, maintenance and distribution functions.

Integration with other service logistics providers is key to the future logistics support of worldwide expeditionary MAGTF operations. The Naval Logistics Integration and MAGTF Logistics Integration initiatives are being included into the integrated supply, maintenance, and distribution processes to ensure Marine Corps logistics is operationally effective afloat and ashore.

The goal of the MAGTF expeditionary logistics initiative is to improve support to expeditionary operations. Combined, these efforts will produce a smaller and more agile footprint, greater adaptability, increased operational reach, and an enhanced ability to operate across the continuum of operations.

TOTAL LIFE CYCLE MANAGEMENT

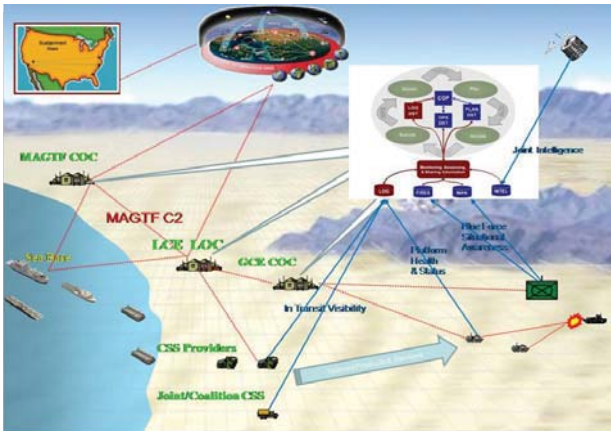
The Total Life Cycle Management (TLCM) initiative is a Marine Corps-wide, cross-functional effort to better integrate the distinct but interdependent processes that compose the total life cycle for ground weapon systems, equipment and materiel with the ultimate aim of enhancing the combat readiness of Marine Air-Ground Task Forces. The initiative encompasses the activities of Headquarters Marine Corps, Marine Corps Combat Development Command, Marine Corps Systems Command, and Marine Corp Logistics Command that are focused on equipping the operating forces. TLCM improvements will unify, align, and streamline the efforts of these stakeholders to provide effective, timely, and responsive ground equipment support to the warfighter.

Clearly aligned roles, responsibilities and relationships among the stakeholders have been an early focus of the TLCM improvement efforts, as has the identification of gaps, overlaps and friction points in the multiple processes that compose the equipment life cycle. As the initiative matures, continuing efforts to improve integration of activities across the life cycle will:

- Field new and improved MAGTF capabilities
- Maximize equipment readiness
- Assure with the highest probability of success that ground weapon systems, equipment, and materiel will be available for use when and where needed
- Eliminate waste throughout the process
- Allow better program planning for requirements development, acquisition, fielding, operation, sustainment, and disposal
- Provide accurate equipment accounting and visibility through enhanced Marine Corps-wide asset management capability
- Provide enhanced Marine Corps-wide sustainment capability
- Provide visibility of Total Ownership Cost for planning, programming, budgeting, and execution purposes
- Provide capability for Marine Corps-wide supply chain management
- Provide ability to assess and improve TLCM effectiveness by monitoring performance and identifying areas for improvement through the use of valid and reliable data
- Strengthen coordination with external agencies

To guide and direct the TLCM initiative, the Marine Corps established a cross-functional, cross-command governance structure including the TLCM Executive and Corporate Boards, supported day-to-day by a TLCM Office embedded within Installations and Logistics Department.

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 Sense and Respond Logistics is both a strategy and ultimately a technical approach by which the Marine Corps will develop and field 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 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: (1) Logistics Management Information; (2) Decision Support; (3) Logistics Chain Management; and (4) Command and Control for Logistics. Key capabilities will include Global Combat Support System — Marine Corps, Autonomic Logistics — Marine Corps Services, AIT, 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, including collecting mission-critical data (position, location, identification, fuel and ammunition levels, equipment health, and mobile loads). AL will provide the infrastructure and services to collect, inform, and disseminate near-real time automated operational/readiness data and status from vehicle and weapon system platforms that will provide commanders with real-time combat-endurance assessments for their units and life cycle managers with accurate platform performance data.

Autonomic Logistics consists of the Electronic Maintenance Support System (EMSS), Embedded Platform Logistics System (EPLS), and Autonomic Logistics — MC Services (ALS). EMSS provides the critical technical conduit and infrastructure to enable a net-centric "maintainer" data environment for platform performance data to enable efficiencies in the maintenance process. It provides ground maintenance personnel with an electronic decision support tool and capability to access Interactive Electronic Technical Manuals (IETMs) and subject matter experts as far forward on the battlefield as possible. EPLS provides the "on-platform" system/infrastructure (e.g., sensors, data controller, automated health monitor) to acquire platform health, fuel, ammunition, and mobile load data; the ability to monitor and report vehicle status, health, and logistics needs for MAGTF ground tactical vehicles; and timely situation awareness and equipment readiness/status to MAGTF commanders. This information supports platform/fleet total life-cycle management by improving the ability to monitor usage, maintenance, failures, and repairs and to provide platform historical performance data and information.

ALS will provide a net-enabled decision support service capability and the "Off-platform" data/information-sharing (networking, data management, and applications) framework (communications, information assurance, and interfaces) and application program interfaces to be interoperable with the MAGTF C2 and Logistics Enterprises. Autonomic Logistics supports the Logistics Management Information, Decision Support, and C2 for Logistics MAGTF S&RL capabilities approach areas to enable more informed decision-making, support more responsive combat service support, enhance overall C2, and reduce total life cycle costs. 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.

ELECTRONIC MAINTENANCE SUPPORT SYSTEM (EMSS)

DESCRIPTION

EMSS provides maintenance personnel a decision support tool capable of wireless connectivity and access to internet applications (GCSS-MC, Interactive Electronic Technical Manuals (IETMs), Computer Based Training, forms, and files). EMSS also provides automated updates of technical data and supports GCSS-MC by providing access for parts ordering and maintenance documentation. Additionally, EMSS provides reach-back capability to SME/Program Office personnel to enhance and assist in maintenance of weapon systems and support equipment. EMSS is a critical enabler of logistic modernization efforts (Item Unique Identification (IUID), Condition-Based Maintenance, Embedded Platform Logistics System, and AL Services).

OPERATIONAL IMPACT

EMSS provides ground maintenance with an electronic decision support tool with the capability to access IETMs and SMEs as far forward as possible.

PROGRAM STATUS

EMSS has received a full fielding decision for 2,141, 2,147 and 3,521 MOSs. Fielding is approximately 75 percent complete.

Procurement Profile:	FY 2011	FY 2012
Quantity:	800	800

Developer/Manufacturer:
Electronic Maintenance Device (EMD), Servers and Charger Rack: Naval Surface Warfare Center, Crane Division, Crane IN

EMBEDDED PLATFORM LOGISTICS SYSTEM (EPLS)

DESCRIPTION

The Embedded Platform Logistics System capability provides accurate visibility of combat and support vehicles operational status (fuel, ammo, system health, mobile loads, and passenger manifest) improving readiness reporting and enhances operational availability. EPLS uses asset health monitoring systems to monitor, collect, process, and display essential platform operating status. The initial capability is designed and integrated into the AAV, MTVR, and LAV platforms and provides the hardware infrastructure for Autonomic Logistics. EPLS is a critical enabler for condition-based maintenance and provides the ability to "alert and fix" a vehicle before major failure. CBM enhancements increase combat vehicle availability by reducing the time required to diagnosis and correct problems the first time.

OPERATIONAL IMPACT

EPLS provides platform health and logistics status for operators, maintainers, and local commanders. This basic platform health and logistics data are transmitted to MAGTF commanders to facilitate logistics support decision-making and more effective maintenance planning.

PROGRAM STATUS

EPLS successfully completed Field User Test and Evaluation in AAV, MTVR and LAV vehicles. Fielding decision is projected for Third Quarter FY2011.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0
Installation	258	275

Developer/Manufacturer:
EPLS System: Lockheed Martin Simulation Training and Support, Orlando, FL

AUTONOMIC LOGISTICS – MARINE CORPS SERVICES (ALS)

DESCRIPTION

ALS provides a MAGTF capability by integrating equipment operational status, system health and logistics needs in to operational and logistics decision planning process. Information is integrated into C2 applications via VMF messages to provide aggregate view of unit level vehicle fuel, ammo, vehicle status, mobile load, and passenger list. Logistic requirements for refueling, ammo distribution, corrective maintenance needs, and mobile load distribution are integrated into GCSS-MC to provide accurate and timely support requests and in transit visibility. Decision support tools provide networked access to ALS data for "drill–down" analysis, in both SIPR and NIPR environments via cross-domain guards ensuring access to all authorized users.

OPERATIONAL IMPACT

This capability allows the operational and support planners the ability to access current status of operational equipment in the area of operation. Additionally, future operation planners will use information to select the equipment to support pending operations based on equipment status and its ability to accomplish commander's intent successfully.

PROGRAM STATUS

A Materiel Development Decision is pending.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
N/A

NAVAL LOGISTICS INTEGRATION (NLI)

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*, the *Marine Corps Operating Concepts*, 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 2010, Joint Vision 2020, the Navy's Engagement in Joint Logistics, and the Tri-Service Maritime Strategy.

NLI has a clear end state: an integrated naval logistics capability that can operate seamlessly afloat or ashore, successfully supporting and sustaining operating units in a joint warfighting environment. NLI has enabled dramatic improvements in sustaining deployed Navy and Marine Corps operating forces by pursuing several initiatives. Examples include the Navy's Cargo Routing Information File (CRIF) that more accurately tracks ship movements and has reduced customer wait time by more than 50 percent for critically needed materiel shipments; deployed Marine Expeditionary Units routinely report receipt of urgently needed items within ten days while afloat. The Navy's Advanced Traceability and Control (ATAC) process, which is now being used by Marine units, has expedited the shipment of more than 172,000 repairable components with better than 99 percent proof of delivery — 44.1 million pounds of cargo since ATAC fielded in FY2005. Moreover, the cost to ship has reduced from $4.28 to $2.28 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 approach to the common acquisition of ground personal protective, sharing depot-level maintenance capacity management, sharing tactical level equipment maintenance, and common material requisitioning capabilities.

NLI is a formal and collaborative effort among Headquarters Marine Corps, the Office of the Chief of Naval Operations (OPNAV), and Coast Guard Headquarters, with extensive, ongoing participation of the Marine Forces and the Numbered Fleets. NLI is challenging the logistics status quo in science and technology, policy and doctrine, business practices and processes, and training and education.

The NLI homepage is hosted on the Navy Knowledge Online (www.nko.navy.mil) portal under the expeditionary logistics community link. Additionally, the NLI home page provides pertinent references and associated historical documentation as well as providing information on past and future events.

JOINT PRECISION AERIAL DELIVERY SYSTEM – ULTRA LIGHT WEIGHT (JPADS-ULW)

DESCRIPTION

JPADS-ULW is a Global Positioning System (GPS) guided parachute system capable of delivering between 250 and 699 pounds (rigged weight) of supplies or equipment to Marines on the ground in austere or remote locations from 24,500 feet above ground level (AGL). JPADS-ULW will autonomously deliver cargo to within 150 meters of a pre-determined impact point or small drop zone from high altitude and lateral offset aerial release points. The JPADS-ULW system is sophisticated, versatile, and rugged yet easy to operate.

OPERATIONAL IMPACT

The Marine Corps' future warfighting concepts call for increasing the distance between units in order to generate greater effect across the battlespace. A lightweight JPADS has been identified to help re-supply small units spread across the battlefield. This system will provide a critical capability when enemy forces possess a significant anti-air threat, airspace has been denied, or clandestine re-supply is paramount. High Altitude High Opening (HAHO) re-supply systems allow aircraft to operate above and offset from potential ground to air threats.

PROGRAM STATUS

The JPADS-ULW is an NDI and an increment of the JPADS Family of Systems. Due to the demonstrated performance of JPADS and joint development experience with the U.S. Army, this program has been tailored to enter the Acquisition Management System in the Production and Deployment phase. System product qualification and integration of the system will be validated, and an evaluation will verify key operational performance parameters prior to fielding.

Procurement Profile:	FY 2011	FY 2012
Quantity:	163	0

Developer/Manufacturer:
TBD

MARINE AIR GROUND TASK FORCE (MAGTF) DISTRIBUTION

MAGTF Deployment and Distribution is the synchronization of processes and systems to include visibility, capacity, and control to successfully deploy and sustain a MAGTF engaged in combat operations. It is the operational process of synchronizing all elements of the logistics system to deliver the "right things" to the "right place" at the "right time" to support the geographic combatant commander. Additionally, MAGTF Deployment and Distribution is an integral component of supply chain operations — the vital part of the supply chain that provides for the timely delivery of required supplies and materiel.

A critical element of MAGTF Deployment and Distribution is the ability to provide the Commander Total Asset Visibility (TAV) and In-Transit Visibility (ITV) of all classes of supply in the distribution pipeline. It also provides critical information on unit move sourcing, preparation and execution. The ability to provide this level of information involves several key enablers.

MAGTF Deployment Support System II (MDSSII): MDSS II is a deployable software application that provides commanders at various echelons of the MAGTF with the ability to build and maintain a database containing personnel and equipment information reflecting how the MAGTF is configured for deployment.

Joint Force Requirements Generator II (JFRG II): JFRG II is a Global Command and Control System-Joint (GCCS-J) mission application that provides the Joint services with a state-of-the-art, integrated and fully deployable automated information system that supports the planning, and execution of strategic force movement deployments and redeployments. JFRG II provides the ability to rapidly create and modify unit data and interfaces directly with MDSS II.

Integrated Computerized Deployment System (ICODES): ICODES, Single Load Planning Capability (SLPC), gives load planners the ability to create a load plan for all modes in a single system with a onetime entry of the data.

Cargo Movement Operations System (CMOS): CMOS provides an end-to-end distribution capability and real-time ITV during all passenger and cargo movements.

Battle Command Sustainment Support System (BCS3): BCS3 fuses together information needed to define the Logistics Common Operating Picture (LCOP) in a tactical environment.

Automated Manifest System – Tactical (AMS-TAC): AMS TAC is a transportation tool that provides ITV and TAV for material flowing through the Defense Transportation System. AMS TAC fully integrates AIT, including optical memory cards, radio frequency tags, and barcode scanning and printing.

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 offerings that include gourmet hamburgers, pizza and focaccia bread sandwiches; and an extensive soup, salad bar, and dessert bar. Alternative menu initiatives implemented in recent 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 increases a unit's capability to prepare a wider variety of rations and provide the means to serve up to twice daily a company-sized unit 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 being prepared for production and fielding 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 setup or tear down the kitchen rapidly in support of high-tempo operations and is sure to be the forward-feeding solution of the future.

MOBILE TRAUMA BAY (MTB)

DESCRIPTION

The MTB is a shelter measuring 15 feet 10 inch X 86 inches X 82 inches (internal measurements) and 20 feet X 8 feet (external measurement) that is mounted on a Logistics Vehicle System Replacement (LVSR). The MTB is armored contains five ballistic windows, can accommodate three litter patients, contains egress ability to move litter patients in and out, can use power from in-service USMC generators, is environmental-controlled, contains the capability to communicate between the MTB and vehicle cab, and is operable and maintainable under all conditions of climate and terrain to which Marines deploy.

OPERATIONAL IMPACT

MTB provides a light armored, self-powered, environmentally controlled space designed to facilitate forward resuscitative medical care. The MTB enables Shock Trauma Platoons to provide resuscitative care for up to three patients simultaneously. MTB provides modular, mobile and expeditionary capability that can be deployed directly behind combat personnel to provide immediate medical care for critically wounded Marines. MTB enables the Shock Trauma Platoon to provide forward deployed emergency/trauma care through task-organized tactical trauma teams with a means of force protection and environmental control. MTB is not designed to transport personnel or be used as a casualty evacuation asset.

PROGRAM STATUS

The Maintenance Center at Albany, GA, is the Original Equipment Manufacturer. The Logistics Vehicle System Replacement (LVSR) is prime mover for the MTB. Nine systems have been produced: Six systems were fielded to OEF; and are currently participating in combat operations; two systems were fielded for home station training; one system fielded to I MEF; and one system fielded to II MEF; one system was built as the engineering development prototype and is currently fielded to III MEF for home station training. II MEF signed the Urgent Universal Need Statement in May 2009, the Statement of Need was approved by CDD in June 2009, and the MROC approved in July 2009.

FAMILY OF FIELD MEDICAL EQUIPMENT (FFME)

DESCRIPTION

The Family of Field Medical Equipment (FFME) consists of medical systems designed to provide Health Service Support (HSS) personnel with the medical equipment and supplies necessary to maintain the combat effectiveness of the force and safely stabilize and evacuate casualties from the battlefield. FFME Systems act as a force multiplier by ensuring equipment, supplies, and medicine are available to treat the wounded and sick as far forward as possible and return them to the fight. There are 30 different medical systems or Authorized Medical/Dental Allowance Lists (AMALs/ADALs). AMALs/ADALs and four medical kits, which include medical equipment and materiel that provide Marine Corps units with point of injury care — Individual First Aid Kit (IFAK), Corpsman Assault Pack (CAP) and Casualty Evacuation (CASEVAC) — to Shock/Surgical Triage, forward resuscitative surgery, and post-operative En Route Care evacuation.

OPERATIONAL IMPACT

FFME systems provide the Marine Air Ground Task Force with First Responder and Forward Resuscitative Care Capabilities, medical equipment and supplies to treat the wounded and sick and prevent the spread of disease. Loss of any of the capability provided by FFME systems would adversely affect health care management throughout the Marine Corps and potentially result in the loss of life. Each AMAL/ADAL and medical kit is modeled by the Naval Health Research Center, verified by Subject Matter Experts (SMEs), and stocked to reflect current casualty rates and protocols. Planned enhancements to FFME systems to improve the quality of health care provided to the warfighter include: Portable Patient Transport Litter System (PPTLS), improved tourniquets; and the Vaccine and Reagent Refrigeration System. Other efforts include joint study efforts with other services in the research and development of hematology analyzers and the Mobile Anesthesia Delivery Module (MADM).

PROGRAM STATUS

A review with NHRC, HQMC, CD&I, MARCORSYSCOM, and SMEs is conducted on each AMAL/ADAL and medical kit every four years. The AMAL/ADL or medical kit is then updated with the latest state-of-the-art medical technology and reconfigured based on current casualty rates and protocols. New or updated equipment to be added to the AMAL/ADAL or medical kit is acquired and fielded the following year and obsolete equipment is disposed of properly.

MARINE CORPS FAMILY OF POWER AND ENVIRONMENTAL CONTROL EQUIPMENT

DESCRIPTION

The Marine Corps Family of Power Equipment encompasses a portfolio program to procure, update, and replenish continuously 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.

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 and Analyzers: PulseTech Corporation, Waco, TX

Refrigerated Containers: SeaBox Inc., East Rutherford, NJ

Solar Power System: IRIS Technology, Irvine, CA

Power Distribution: LEX Product, Stamford, CT

Floodlights and Generators: Magnum Products, Berlin, WI

Integrated Trailer, ECU and Generator: General Dynamics, Tucson, AZ and Magnum Products, Berlin, WI

On-Board Vehicle Power System: Oshkosh Truck Co., Oshkosh, WI and DRS, Huntsville, AL

TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE)

DESCRIPTION

Marine Corps TMDE encompasses an extensive variety of both General-Purpose and Automated Test Measurement Equipment, ranging from handheld voltmeters, spectrum analyzers, and oscilloscopes, to mobile machine shops, expeditionary engine dynamometers, and calibration systems. TMDE also procures a vast array of General-Purpose Tools, Sets and Kits used by the 30,000-plus ground equipment maintainers.

OPERATIONAL IMPACT

TMDE procurements enable Marine Corps ground mechanics and technicians to safely repair broken or combat-damaged motor transport, ordnance, communication electronics and engineer systems as far forward as possible on the battlefield in support of the scheme of maneuver and logistical requirements of the Marine Air Ground Task Force, using tools and test measurement equipment verified to meet appropriate National Institute of Standards and Technology measurement standards

PROGRAM STATUS

The TMDE program supports the entire Marine Corps' ground maintenance capability. As technology advances, there is a continuous upgrade and replacement of predominately commercially available Tools and Test Equipment as determined necessary to safely and effectively install, operate and maintain the latest weapons systems fielded throughout the Operating Forces. Specific items may be managed as acquisition or abbreviated-acquisition programs, and there are multiple acquisition programs in progress at any point in time.

Procurement Profile:	FY 2011	FY 2012
Quantity:	Various	Various

Developer/Manufacturer:
Handheld Spectrum Analyzers: Agilent Technologies, Santa Clara, CA

Handheld Oscilloscopes and meters: Fluke Corporation, Everette, WA

Mobile Machine Shops: Seabox, Riverton, NJ

Mobile Tool Trailers and Carts: Snap-On Tools, Kenosha, WI

Portable Tool Kits: Danaher Tool Group, Sparks, MD

Automated Ground Radio Test Set: Aeroflex, Wichita, KS

Automated Test Program Sets: Mantech, Chantilly, VA, and DME, Orlando, FL

Automated Optic Test Set: Santa Barbara InfraRed, Santa Barbara, CA

Calibration Equipment: Mahr Federal, Providence, RI; AKO Torque Specialties, Enfield, CT; and Tegam, Geneva, OH

EXPEDITIONARY – WATER PACKAGING SYSTEM (E-WPS)

DESCRIPTION

The E-WPS is a skid-mounted, automated, self-contained, water packaging system, capable of packaging water at 75 Gallons Per Hour (GPH). The E-WPS places potable water into bags ranging from 1 to 3 liters. The E-WPS is integrated on a standard High-Mobility Multi-Wheeled Vehicle trailer. The system serves as source of resupply for currently fielded hydration systems or stand-alone packaged water for relief missions. The E-WPS is capable of being used with the Lightweight Water Purification System (LWPS), the Tactical Water Purification System and other potable water sources.

OPERATIONAL IMPACT

Water usage rate in Iraq is estimated to be 5.9 liters per day per Marine. E-WPS provides the capability to package and distribute potable water on location at forward operating bases and other outposts, significantly decreasing or eliminating the need to transport bottled water.

PROGRAM STATUS

The E-WPS program was initiated December 2009. A contract for the initial test articles was awarded June 2010, technical testing will conclude in April 2011. A Milestone C Decision is scheduled for August 2011. Fielding is estimated to be completed by February 2013.

Procurement Profile:	FY 2011	FY 2012
	16	61

Developer/Manufacturer:
Global Technologies, Frederick, MD

LIGHTWEIGHT WATER PURIFICATION SYSTEM (LWPS)

DESCRIPTION

The Lightweight Water Purification System (LWPS) is a lightweight, modular, highly transportable, self-contained water purification system. This system allows a crew of two Marines to provide potable water to company-sized organizations across the spectrum of conflict with limited logistical support. The LWPS is capable of producing 125 Gallons Per Hour (GPH) from a fresh or brackish surface water source and 75 GPH from a natural surface seawater source or groundwater source, with a daily production capacity of 1,500-2,500 gallons of water per day depending on the raw water quality. This production rate meets the 1,500 gallons of water daily — 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. The light weight modular design allows operational units to purify water where use of the less mobile Tactical Water Purification system (TWPS) is not operationally feasible. A single High-Mobility Multipurpose Wheeled Vehicle or helicopter can transport an entire system in order to provide flexibility in executing expeditionary operations.

PROGRAM STATUS

The LWPS program was initiated on May 2007. A Full Rate Production Decision was granted July 2010, and a Fielding decision is planned for the Fourth Quarter FY2010, with Fielding scheduled to be complete by the end of FY2012. A total of 189 LWPS will be procured, with 25 LWPS being provided in support of OPERATION ENDURING FREEDOM in response to an Urgent Statement of Need.

Procurement Profile:	FY 2011	FY 2012
	44	28

Developer/Manufacturer:
Terra-Group Corporation, Allentown, PA

CONVENTIONAL GROUND AMMUNITION (CLASS V(W))

DESCRIPTION

Supply 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), shoulder-fired rockets and missiles, medium caliber (25mm and 40mm) weapons, mine clearance systems, 120mm rifled mortars for the Expeditionary Fire Support System, 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 Nation, it is imperative that the Marine Corps maintains a healthy procurement profile as well as a robust munitions stockpile 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 previous three fiscal years, ammunition investment has allowed for sufficient flexibility in supporting several munitions based urgent need statements generated by the operating forces as well as training growth as a result of Overseas Contingency Operations.

PROGRAM STATUS

Planned conventional 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.

Procurement Profile:
Using the Marine Corps ammunition stockpile as a baseline, and assessed against the TMR, the FY2011 and FY2012 budget includes procurements of approximately 75 individual line items of ammunition in various quantities. Select representative procurement quantities, by general munitions family, is provided at the following:

Procurement Profile:	FY 2011	FY 2012
Small Arms Family	157,852,000	153,087,000
Mortar Family	341,000	147,000

Tank Family	13,000	4,000
Artillery	520,000	241,000
Rocket Family	102,000	27,000
40MM	4,248,000	4,233,000
Grenades	898,000	794,000

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, and American Ordnance, Middleton, IA

Artillery Ammunition: Chamberlain Manufacturing, Scranton, PA, and American Ordnance, Middleton, IA

Rockets: NAMMO /Talley Defense Systems, Mesa, AZ, and SAB Bofors Dynamics, Karlskoga, Sweden

COMMUNICATION ELECTRONICS EQUIPMENT MAINTENANCE COMPLEX (CEEMC) RIGID WALL SHELTER

DESCRIPTION

The Marine Corps has operational requirements in support of OPERATION IRAQI FREEDOM/NEW DAWN AND OPERATION ENDURING FREEDOM, as well as mission need statements, and operational requirements addressing a critical need for field maintenance and repair capability for critical communication electronic equipment systems.

The Communication Electronics Equipment Maintenance Complex (CEEMC), in accordance with the Required Operational Capability (ROC) dated 1 February 1983 and the Statement of Need (SON) dated 21 April 2008, will provide the warfighter with a Rigid Wall Shelter. The shelter will be durable, expandable, tactical and modular. The CEEMC will also have interchangeable Internal Appointment Modules (IAMS) that will optimize work space. The shelters are easily re-locatable and require minimum maintenance. The CEEMC will also protect equipment and personnel while conducting maintenance functions needed to support deployed operations. In addition to these characteristics, CEEMC Systems are compatible with standard organic Marine Corps power generators, environmental control units, and transportation assets. The CEEMC System also meets the International Standardization Organization (ISO) certification requirements.

The CEEMC System is an expandable rigid wall shelter approved by DoD Joint Committee on Tactical Shelters (JOCOTAS) that will be used to replace legacy non-expandable rigid wall shelters that have met or exceeded their service lives. The CEEMC system will be deployed in the same manner as the legacy non-expandable shelters.

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; command, control, communications, computers, and intelligence systems (C4I); ground radio systems, telephone systems, fiber optic communication systems; night-vision goggles; cryptographic equipment; Light Armored Vehicle (LAV) weapons systems; and small arms.

PROGRAM STATUS

CEEMC achieved a MS C Full Rate Production Decision in FY10 and will begin fielding in FY11."

The Approved Acquisition Objective (AAO) is 65 shelters, with two CEEMC shelters being produced per month. Once a shelter is fully integrated with IAMs and components, the shelter will be packaged and shipped to the unit identified in the Fielding Plan. Initial Operation Capability of 12 will be achieved when a Marine Corps Logistics Group from a Marine Expeditionary Force has been fully equipped, trained, and supported. Full Operational Capability will be achieved when all Marine Corps owning units have been equipped.

Procurement Profile:	FY 2011	FY 2012
Quantity:	8	0

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

PART 8: MARITIME SUPPORT

MARITIME SUPPORT TO EXPEDITIONARY OPERATIONS

During the 1920s and '30s the Navy and Marine Corps began experimenting with new concepts and techniques that would change the way they conducted expeditionary operations. The Navy experimented with carrier operations using a converted coal ship and two partially completed battle cruisers. At the same time the Marine Corps began to experiment with amphibious tractors, close-air support, and combined arms to develop doctrine and training for amphibious operations. The inter-war years of experimentation and concept development resulted in a Navy and Marine Corps team that won the War in the Pacific during World War II.

Today, we are at a similar point in the evolution of new expeditionary capabilities and a similar commitment to experimentation and concept development is needed. The concept of seabasing is maturing and becoming a reality as new platforms and technologies that allow us to operate more effectively from a sea base are delivered. Until recently, Marines have been able to conduct sea-based operations only from amphibious shipping because today's prepositioned capabilities can only be employed once forces are assembled ashore. Additionally, our prepositioned equipment has been perceived as a "break glass in time of war" capability primarily reserved for major combat operations. However, to meet the demands of today's security environment, our amphibious and prepositioning assets must become more integrated to better support steady-state operational requirements and eliminate the false perception that amphibious and prepositioning capabilities are separate and distinct capabilities. Amphibious and prepositioning capabilities are complementary and in the future will become more interoperable. Both capabilities must evolve to provide greater utility, particularly in irregular warfare and other low to mid-intensity operations, while retaining the capability to fully execute major combat operations. Our Maritime Prepositioning Force (MPF), in particular, must develop a full at-sea arrival and assembly capability to better support operations ashore.

EXPEDITIONARY NAVAL FORCES IN SUPPORT OF NATIONAL STRATEGY

The tri-Service *A Cooperative Strategy for 21st Century Seapower* states that forward-deployed and globally engaged Marine Corps expeditionary forces, with the Navy and Coast Guard "act across the full range of military operations to secure the United States from direct attack; secure strategic access and retain global freedom of action; strengthen existing and emerging alliances and partnerships and establish favorable security conditions." Most significantly, these "persistently present and combat-ready" maritime forces also "provide the Nation's primary forcible-entry option in an era of declining access."

The Marine Corps' amphibious and prepositioning capabilities contribute to the Joint force's expeditionary capability and fulfill the nation's maritime strategic

imperatives of:

- Limiting regional conflict with forward-deployed, decisive maritime power
- Deterring major power war
- Winning our Nation's wars
- Contributing to homeland defense in depth
- Fostering and sustaining cooperative relationships with more international powers, and
- Preventing or containing local disruptions before they impact the global system

Operating in concert with the Navy, Marine Corps expeditionary forces can be employed from a sea base to complement other joint means of projecting power and influence. These forces leverage the advantages afforded by our command of the seas and ability to dominate the maritime domain to conduct operations in the littorals. The Marine Corps' expeditionary forces also contribute significantly to achieving the Marine Corps' core competencies

OPERATIONAL ROLE OF MARINE CORPS EXPEDITIONARY FORCES

Our strategies and concepts address the following requirements: the ability to maintain open and secure sea lines of communication for this maritime nation; the ability to maneuver over and project power from the sea; the ability to work with partner nations and allies to conduct humanitarian relief or noncombatant evacuation operations; and the ability to conduct sustained littoral operations along any coastline in the world.

Marine Corps expeditionary forces provide a balanced and scalable set of capabilities to counter irregular threats, respond to emerging crises, and conduct major combat operations. In this era of strategic uncertainty, "a forward deployed expeditionary force, consistently engaged and postured for rapid response, is critical for national security in the future as it is today."

The Marine Corps' expeditionary capability is enabled by the complementary employment of both amphibious shipping and prepositioned equipment. Together they provide responsive and scalable options to project influence and power and provide support across the full spectrum of operations to include engagement operations and crisis response. The deployment of the 22d and 24th Marine Expeditionary Units (MEUs) on board amphibious shipping and the prepositioning ship USNS *Lummus* to support operations in Haiti in 2010 is an example of the complementary capability to rapidly respond to an emerging crisis. These forces provide a similar capability to respond at the high end of the spectrum to create littoral maneuver space for the Joint force. The expeditionary character and versatility of Marine Corps expeditionary forces provide the nation with the asymmetric advantage of seamlessly adjusting the size of its military footprint to match the changing situation ashore.

CURRENT AMPHIBIOUS CAPABILITY

Among the many capabilities provided by integration of combat ready MAGTFs with amphibious ships, three are of critical importance:

- Forward presence to support engagement and theater security cooperation
- A ready force to immediately respond to emergent crises, and
- A credible and sustainable forcible entry capability

Forward-deployed amphibious forces are unique in that they are postured to immediately respond to emerging crises while conducting persistent forward engagement to prevent and deter threats — particularly in the areas of instability found in the littorals. Often the presence of an amphibious force capable of delivering a stunning amphibious blow at a point and time of their own choosing, is enough to stabilize an escalating crisis. The inherent versatility and flexibility of amphibious forces — exemplified by their ability to conduct missions across the range of military operations — achieves advantages disproportionate to the resources employed.

An amphibious capability creates four strategic benefits for a nation dependent on its ability to exploit its command of the seas to project influence and power.

- **Increased Freedom of Action:** Amphibious forces can use the maritime domain as a base from which to conduct operations. They can loiter indefinitely in international waters and maneuver ashore at the time and place of its choosing.
- **Deterrence:** While a standoff strike is sometimes an adequate response, other situations require the rapid insertion of sustainable combat forces — "boots on the ground" — to underscore the Nation's commitment.
- **Assured Access:** Amphibious forces contribute unique and essential capabilities toward the Nation's ability to enter a region without regard to access constraints and impediments.
- **Uncertainty for Adversaries:** A credible forcible-entry capability compels potential adversaries to invest in a broad range of systems and spread their defenses over a larger area of concern.

The Marine Corps' lengthy experience in conducting forward engagement and security cooperation operations in the littorals has dispelled the misperception that forcible entry is the only yardstick by which the requirement for amphibious capability and capacity is measured. More relevant metrics in today's security environment, as presented in the 2010 *Quadrennial Defense Review*, are the capability to conduct persistent forward engagement activities and provide a crisis response force while retaining the capability to respond to major contingencies.

The importance of amphibious forces is highlighted by the increased employment of Marine Corps expeditionary forces since the end of the Cold War. From 1946 through 1989, amphibious forces were employed on average 2.45 times per

year; since 1990, the rate has increased to 5.47 times per year. The demand for amphibious forces to support steady-state operations is projected to increase even more in the coming years as combatant commanders place greater emphasis on conducting sea-based persistent forward-engagement activities throughout their areas of responsibility (AORs). Combatant commanders' global demand for amphibious ready groups (ARGs) and Marine Expeditionary Units (MEUs) has increased 86 percent and 53 percent for independent amphibious ships during the FY2007 to FY2011 period.

The ability to meet the demand for amphibious ships with the programmed amphibious fleet is a critical concern. The increased demand for amphibious forces has placed a strain on amphibious shipping as the employment of amphibious forces has increased while the inventory of amphibious ships has declined. While newly delivered amphibious ships, such as the *San Antonio* class LPD, are more capable than the ships they replace, a ship can be in only one place at a time. Although the fleet retains a responsive surge capability, the constrained number of in-service ships precludes fully supporting the growing demand for rotational MEU and Global Fleet Station (GFS) deployments and other requirements. The Marine Corps amphibious ship and associated connector requirements are highlighted in the following pages.

AMPHIBIOUS WARSHIPS

Amphibious warfare ships are the centerpieces of the Navy/Marine Corps' presence, forcible-entry and sea-basing 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 (Transition). 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 early 2011. 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 by FY2014. The first of two transitional LHA Replacement (LHA(R)) ships, the USS *America* (LHA 6), began construction in 2008. LHA 6 design modifications optimize aviation support for MV-22B Osprey and F-35B 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. Efforts are underway to incorporate a well deck into the FY2016 LHA(R) platform and to incorporate changes in the basic ship design to ensure optimized aviation and surface operations and service life.

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 2011. The *San Antonio* class LPDs will replace the remaining ships of the LPD-4 *Austin* class.

The LPD-17 class' unique design facilitates expands force coverage and decreases reaction times of forward-deployed MEUs. 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-22B Osprey tiltrotor aircraft, four CH-46E Sea Knight helicopters or a various mix of H-1 attack utility 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 FY2012 with additional ships to follow in the subsequent years. The contract includes options for eight additional vessels to be awarded between FY2011 and FY2015. 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. 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) program was begun to develop a 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 74 Short-Ton Air-Cushion Vehicle concept in the approved Initial Capabilities Development Document as the LCAC replacement platform.

The Joint Requirements Oversight Council approved the Capability Development Document in June 2010 and the Request for Proposal for Detail, Design, and Construction is planned for release to allow for the contract award in FY2011, and delivery of the test and training craft in FY2016.

EVOLUTION OF MARITIME 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 and beyond. 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 first stages of this plan have already been realized. Each Maritime Prepositioned Squadron (MPSRON) has increased organic ship-to-shore movement capability with the 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. The Maritime Prepositioning Force (MPF) has been recapitalized with the Military Sealift Command (MSC) either purchasing or terminating the program's leased ships. The recapitalization plan also included the addition of a general-purpose container ship and a tanker ship, which are now operational. The final major enhancement is the integration of a Large Medium-Speed Roll-On/Roll-Off (LMSR) ship into each

MPSRON. The LMSRs provide more stowage space to accommodate the larger and more numerous equipment of the MEB. The addition of these three LMSRs will provide a net increase of more than 400,000 square feet. The first LMSR (USNS *Sisler*) was integrated into MPSRON-1 in 2008; the second (USNS Dahl) was added to MPSRON-3 in February 2010; and the third (USNS *Seay*) will join MPSRON-2 in February 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 back-loading 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 warships, 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*.

Completed in 2009, the Joint Expeditionary Fires Analysis of Alternatives identified the optimum U.S. Navy programs to support Marine Corps naval surface fire support requirements. This study established the baseline capabilities of the current naval surface fire support program of record (13nm projectile of the 5-inch gun and the Advance Gun System of the DDG-1000) to be insufficient in mitigating fire support gaps. The study determined that extended range 5-inch munitions would serve as a complementary alternative to the three DDG 1000s. Dramatic improvements in 5-inch projectiles can extend the naval surface fire support maximum range, across the 106 guns in the surface fleet, from 13 to 52 nautical miles with precision, high angle attack for use in operations in urban terrain, and potential effectiveness against moving targets.

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 2016, 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 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-plus 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)

Mines employed at sea as well as on land have continued to proliferate due to their relatively low cost, ease of acquisition or manufacturing, and most of all by their proven effectiveness. For example, between the end of World War II and early 2011, 15 of 19 U.S. warships that were sunk or severely damaged by adversary actions were mine victims. Mines as part of integrated access-denial system presents a severe challenge to the Navy and Marine Corps Team's ability to conduct Expeditionary Maneuver Warfare. In fact, naval forces are incapable of successfully executing JFEO in acceptable timeframes when very shallow water (VSW), surf zone (SZ), and beach zone (BZ) mines and obstacles are present. Additionally, naval forces are not currently trained to the standard required to successfully conduct MCM operations of the scale required by a MEB- or MEF-level amphibious operation. In order to close this gap, a family of Navy and Marine Corps MCM systems is being developed to allow joint and 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. In addition to materiel solutions, tactics, techniques, and procedures are being developed to support seamless naval expeditionary operations throughout the littoral and beyond.

FROM THE STERN GATE THROUGH THE BEACH

Sea-based forces 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. When fielded, 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-shore movement, the Marine Corps relies upon the Navy to maneuver its amphibious forces to the beach, allowing the deployment and prosecution of operations ashore. Forces, equipment, and supplies will have to cross the beach regardless of 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. As a Navy MCM adage explains, "the easy way is always mined."

The Navy's triad of deep-water MCM capabilities resides in surface mine countermeasure ships (SMCM), airborne mine countermeasure (AMCM) helicopter squadrons, and underwater mine countermeasures teams consisting of explosive ordnance disposal (EOD) detachments, some equipped with marine mammal systems and unmanned vehicles.

The Navy is engaged in an effort to augment the triad with MCM systems embarked on ships of aircraft carrier and amphibious ready 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 AMCM 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 (water 10 to 40 feet deep), the surf zone (water 10 feet deep 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), consists of a 180-man unit 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 VSW waters from 40- to 10-feet deep and BZ operations. Data-collection capabilities, 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.

THROUGH THE BEACH AND BEYOND

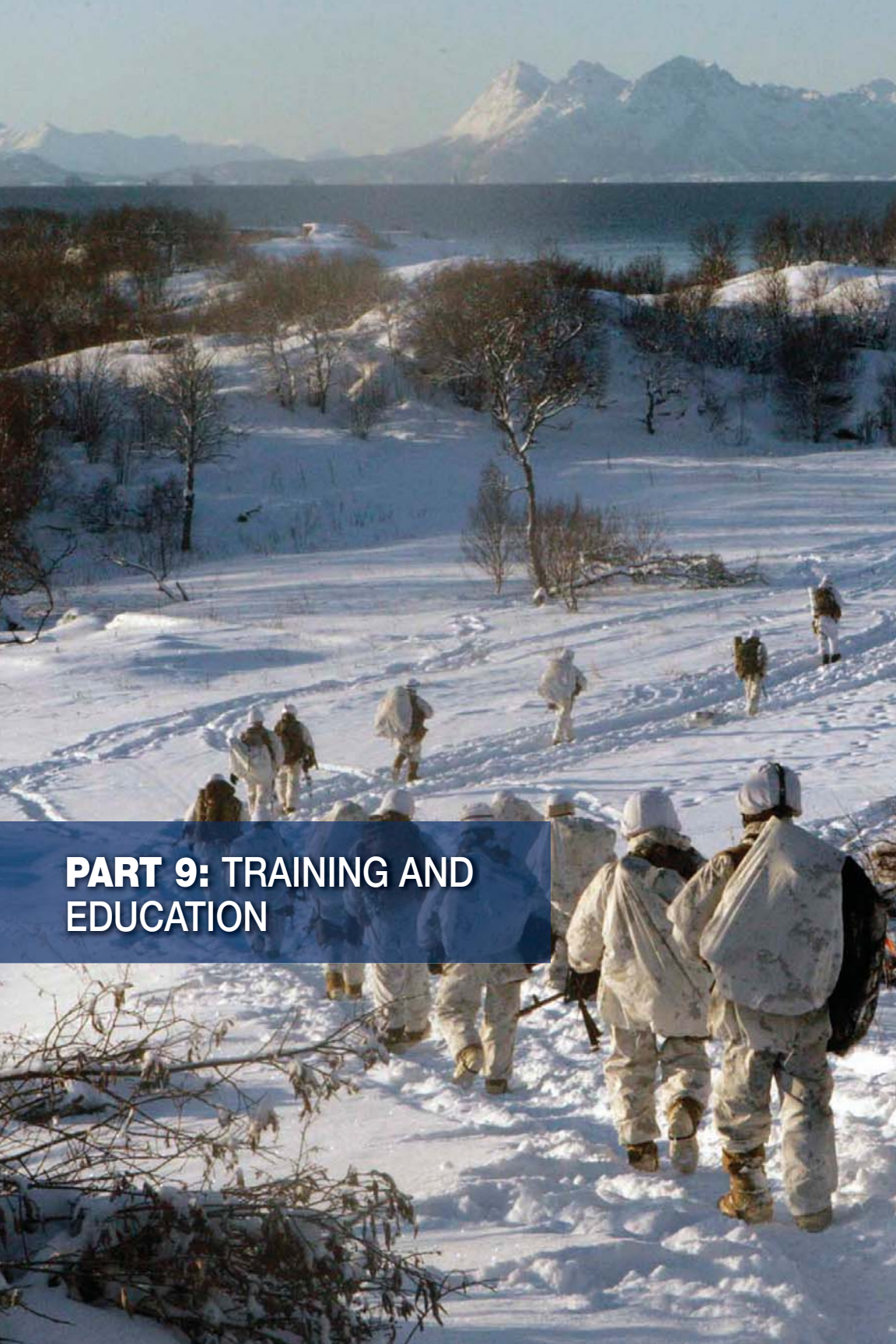
Once ashore, naval expeditionary forces must be capable of detecting, breaching, clearing, proofing, marking land mines and obstacles, and the dissemination mine and obstacle data across the naval forces from the critical Navy-Marine Corps handoff in the vicinity of the beach exit to the force objectives and beyond. Marine Corps commanders must be able to detect and avoid landmines and improvised explosive devices (IEDs) and obstacles when possible and breach them when necessary. The Marine Corps' current inventory of MCM systems includes Route Clearance Sets consisting of an array of Mine-Resistant Ambush Protected (MRAP) vehicles with varying detection and interrogation capabilities, the AN/PSS-14 Mine Detector that uses ground penetrating radar to locate mines, Lightweight Metal Detectors used to detect IEDs with a low metallic content), IED Detector Dogs (IDDs) specifically bred/

trained to detect an array of conventional explosives as well as homemade explosives (HME), 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, and proofing systems (M1 tank with track-width mine plow and armored D-7 dozer).

The Assault Breacher Vehicle (ABV) has been fielded to meet its Initial Operational Capability scheduled for FY2009. ABV is a single-platform minefield breaching/clearing/proofing/marking system that has 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 currently offers deliberate and "in-stride" breaching capabilities — allowing commanders to maintain initiative and momentum.

MCM doctrine, training, and equipment is slowly evolving to cover capability gaps, replace obsolete equipment, and meet the challenges posed by newer threats, such as the greatly increased use of 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 9: 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 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 (TECOM) 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.

Values Based Training (VBT): The purpose of VBT is to establish a common set of values that every Marine can understand and uphold. These common values establish teamwork and discipline, and ultimately build trust and confidence in fellow Marines, in our leaders, and with the American people. VBT starts at recruit training, the stress (Physical, Mental, and Moral) on the recruit increases over the course of the crucible's 54 hours. During each rotation the recruits participate in a Core Values Station:

- *Station 1 Commitment:* This station focuses the recruits on teamwork and commitment, and comes at a time during the crucible when the level of stress is relatively low.
- *Station 2 Courage:* This station focuses the recruits on the need to reach within and to continue to face, with courage, the challenges that still lie before them and why it is important that they succeed, and comes at a time during the crucible when the level of stress is starting to grow, and may come on day two when it is high.
- *Station 3 Honor:* This station - Law of War discussion and scenarios station. It comes at a time during the crucible when the level of stress is near peak, places the capstone on Core Values and focuses the recruits on winning battles with honor on the battlefield, even when they are under stress.

Enhanced Combat Hunter Leaders Course (ECHLC): Combat Hunter is the creation of a mindset through integration of enhanced observation, combat profiling and combat tracking in order to produce a more ethically minded, tactically cunning and lethal Marine better prepared to succeed across the range of military operations. He proactively assesses the environment in order to gain a tactical advantage over the enemy. As a persistent collector he systematically observes and profiles his surroundings, collecting more relevant information from the human, social, and physical ter-

rains and reports information of greater relevance and potential intelligence value. In regards to the intelligence cycle, a combat hunter trained Marine enables more efficient analysis and prioritization of collected information, thus increasing the tactical tempo. The purpose of the ECHLC is to develop leaders who will be able to train, lead, and employ Combat Profiling, Tactical Questioning, Tactical Site Exploitation, Combat Tracking, Enhanced Observation, Human Psychology, Decision Making, Tactical Debriefing and Policing in Combat to support both individual Marine and Company Operations.

Tactical MAGTF Integration Course (TMIC): Taught by the Marine Corps Tactics and Operations Group (MCTOG) in Twentynine Palms, TMIC will train Gunnery Sergeant through Master Gunnery Sergeant, Infantry Weapons Officer (Gunner), and Captain through Major from the ground combat MOS's to become proficient battalion operations chiefs and officers. The course includes 341 academic hours that is taught over 34 training days. The course is conducted over a period of six weeks and is divided into three blocks of instruction:

Block 1 is Academics and Applications,

Block 2 is Ground Combat Element Integration and,

Block 3 is Final Exercise

During the Academics and Applications block of the course, students will receive instruction and participate in events focused on enhancing their knowledge in seven primary subjects: Plan, Operate, Joint and Interagency, Intel driven operations, Fires, Information operations and training. They will be evaluated through performance evaluations for learning objectives from the train duty area.

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.

MAGTF Training Program: TECOM is developing the next generation for how Marines in the operating forces will prepare for future fights and operating environments. The MAGTF Training Program will establish, define, and integrate the requirements for training programs and resources which will facilitate the development of warfighting capabilities in those operational forces which comprise a MAGTF.

Battle Staff Training Program (BSTP): The BSTP is designed to provide training to battle staffs across all the elements of the MAGTF, at echelons from a company to MEF level. Most impor-

tantly, the BSTP integrates individual and collective training, provided by multiple organizations from across TECOM, into a single training continuum beginning with training of Command and Control Systems Operators, and concludes with a Command Post Exercise that tests the abilities of the entire staff. The BSTP provides an invaluable tool for the commander to assist in the training of his staff, and provides the commander with a detailed understanding of the full staff training continuum.

MAGTF Integrated Training Exercise (ITX): The MAGTF ITX provides a battalion or squadron level collective training event supporting training in skills required to accomplish assigned core mission essential tasks (METs), and serves as the Service level assessment of a unit. 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. ITX will provide training on the techniques of MAGTF integration at the tactical level and the technical skills allowing subordinate units of the MAGTF to work together.

MAGTF Large-Scale Exercise (LSE): The MAGTF LSE is a Marine Expeditionary Brigade and Marine Expeditionary Force-level exercise program that will use a Live-Virtual-Constructive (L-V-C) training linked through a supporting network across the United States and with amphibious forces afloat to focus on the integration of headquarter organizations and their ability to conduct integrated MAGTF operations. It can be used as the final pre-deployment training event for a MAGTF which as has been designated to deploy, or it will serve as an exercise to validate the ability of the MAGTF to execute designated core mission essential tasks (METs), depending on requirements of the MEF commander. MAGTF LSE will increase joint and amphibious capabilities as the Marine Corps reconstitutes its full amphibious capability.

JOINT, INTERAGENCY, AND MULTINATIONAL (JIM) TRAINING

Leveraging several joint initiatives from the Office of the Secretary of Defense (OSD), the Chairman Joint Chiefs 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 the U.S. Agency for International Development, the Security Cooperation Education and Training Center (SCETC), and MCTOG, deploying units have been trained in the use of the District Stability Framework, which is an assessment tool 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.

Multinational 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" pre-deployment 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 MRX that focuses on providing a service-level assessment of battalions and squadrons in preparation for deployment. The exercise scenario allows units to combine their core Marine Corps competencies with Afghanistan-specific capabilities. 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 exercise, units undergo training and assessment in offensive operations, defensive operations, Stability Operations 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 predeployment 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.

MISSION-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 (MCRP 3-0C), 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 MAGTF 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 2011, 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 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 the Science and Technology community. With this forum's input, MTSD has published a training simulation M&S strategy and master plan that meets 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. TECOM has participated in numerous joint initiatives focused on immersive training at the squad and platoon levels. 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. These efforts will be integrated within the emerging Small unit Integrated Training Environment (SuITE) program to provide the domain for ECO.

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, MROC approved TECOM's Initial Capabilities Document which as-

sessed the Marine Corps' live, virtual, and constructive training environment capabilities. This analysis identified gaps in the Marine Corps' ability to link different current capabilities and delineated integration standards for future capabilities. TECOM is further 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 (MEB) level. Using the system components and simulation capabilities, 2D and 3D visuals, interfaced C4I, synthetic terrain, and an After Action Review (AAR), the CACCTUS system immerses trainees in a realistic, scenario-driven environment. The simulated scenarios enable commanders and their battle staffs to train or rehearse combined arms tactics, techniques, procedures and decision-making processes prior to any physical engagement. In addition, CACCTUS will provide training across live, virtual, and constructive training networks through interoperability with appropriate Command, Control, Communication, Computers, and Intelligence (C4I) systems in a training environment.

OPERATIONAL IMPACT

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

PROGRAM STATUS

In early FY 2011 CACCTUS version 5.2 will be fielded to Camp Pendleton, CA, Hawaii and Okinawa and in the 2d Quarter FY11 version 5.3 will be employed to all five sites.

Procurement Profile:	FY 2011	FY 2012
Quantity:	3	0

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

COMBAT VEHICLE TRAINING SYSTEM (CVTS)

DESCRIPTION

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

OPERATIONAL IMPACT

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

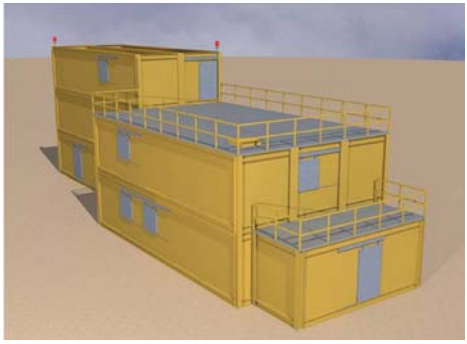
PROGRAM STATUS

In early FY 2011, 32 M1A1 and 40 LAV Tabletop AGTS devices will be fielded.

Procurement Profile:	FY 2011	FY 2012
M1A1 Tabletops	32	0
LAV Tabletops	40	0

Developer/Manufacturer:
Lockheed Martin, Orlando, FL

SHIP ON LAND (SOL)



DESCRIPTION

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

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

OPERATIONAL IMPACT

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

PROGRAM STATUS

Late in FY11, Ship on Land is planned to be in place at MCB Camp Lejeune, NC and will simulate a realistic LHD training environment with live-fire capabilities.

Procurement Profile:	FY 2011	FY 2012
Quantity:	1	2

Developer/Manufacturer:
Bristol

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 (OPFOR), 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, TECOM and managed by Program Manager Training Systems (PM TRASYS), Marine Corps Systems Command, RM/T is the capability end state for the integrated design of live 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, OPFOR threat systems (including targets), and data collection systems in order to instrument the live training environment at multiple Marine Corps Bases and Stations. A parallel effort is enhancing the RM/T Data Collection System (Marine Corps-Instrumented Training System) to provide interface of Improvised Explosive Device (IED) and Joint Counter Radio controlled Improvised Explosive Device Electronic Warfare System (J-CREW) 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.

GROUND RANGE SUSTAINMENT PROGRAM (GRSP)

DESCRIPTION

The Range and Training Area Management Division, TECOM has partnered with PM TRASYS to establish the Ground Range Sustainment Program (GRSP). Its purpose is to sustain the continuity of Marine Corps training on Live Fire and Non-Live Fire Ranges through improvements or replacement of existing training devices such as, target lifters, worn targets and replacement control computers that cannot be accomplished within existing operating and maintenance (O&M) budgets. The maintenance of "state of the art" range control systems also supports current training requirements. This is the area where GRSP will be most used. The cost of materials and installation for GRSP projects will not normally exceed $250,000. CG, TECOM is the waiver authority for projects exceeding this amount. GRSP projects include:

- Targetry
- Ballistic Protection
- Range Communications
- Bullet Traps

OPERATIONAL IMPACT

The GRSP is the only program of its kind that was developed for the sole purpose of sustaining, upgrading and maintaining all Marine Corps Live Fire and Non-Live Fire Ranges. The GRSP Program supports current, emerging and future terminal learning objectives (TLOs) and enabling learning objectives (ELOs) that allow Marines the ability to achieve and maintain the required level of Combat Readiness.

PROGRAM STATUS

In 2010, 27 ranges were upgraded. Projects that were submitted under the FY10 program were to be considered as emergent projects using a rather liberal interpretation of the term "emergent". Generally, any project that improves safety or operability was labeled favorably. Projects not selected as emergent shifted to the FY11 program. FY11 projects are very diverse in both type and location and serve to bring simplified targets upgrades to a variety of ranges.

Procurement Profile:	FY 2011	FY 2012
Quantity:	39	0

Developer/Manufacturer:
RTS IDIQ Contractor, SAAB Training Systems, Orlando, FL

Lockheed Martin Training Systems, Orlando, FL

Meggitt Training Systems, Suwanee, GA

Action Target, Provo, UT,

Patriot Prod. Franklin, IN

TARGET SYSTEMS

DESCRIPTION

Automated Targets is a subset under the overarching Range and Modernization/Transformation (RM/T) Program of Record (POR) which is upgrading Marine Corps live fire training capabilities. Targetry has evolved to include stationary, moving pop-up infantry, vehicle targets, as well as reactionary Friend/Foe targets and Hit/Miss Detection systems within Remote Target System Ranges (RETS), MOUT Facilities, and non-traditional ranges. Automated Targets and accompanying Range Control Systems are fielded across all Marine Corps Bases and Stations. Target Systems to include:

- Stationary Infantry Targets (SITs)
- Stationary Armored Targets (SATs) including various types of vehicle silhouettes
- Moving Infantry Targets (MITs)
- Moving Armored Targets (MATs)
- Target Enclosures to include Electrical and Data Cabling installation
- Range Control Systems
- Location of Miss and Hit (LOMAH) systems

OPERATIONAL IMPACT

Marine Corps live fire, automated target systems has evolved to include stationary pop-up and moving infantry and vehicle targets, as well as reactionary Friend/Foe targets, and Hit/Miss Detection systems within Remote Target System Ranges (RETS), MOUT Facilities, and various nontraditional training ranges.

Target Systems continues developing and fielding new capabilities that create a realistic Live-Fire Training Environment to specifically enhance initial and sustainment live fire training and Marine combat training at all of our Marine Corps training bases.

PROGRAM STATUS

In 2010, 13 ranges were upgraded with new automated targetry and range control systems markedly enhancing Marine Corps marksmanship and combat training at these sites. Eleven are planned in FY11.

Procurement Profile:	FY 2011	FY 2012
Quantity:	11	0

Developer/Manufacturer:
Saab Training Systems, Orlando, FL

Lockheed Martin Training Systems, Orlando, FL

Meggitt Training Systems, Suwanee, GA

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, peacekeeping and law enforcement to direct combat that can be encountered in a complex urban setting within a relatively brief timeframe or small physical area, known as the "three block war." This allows for today's warfighters to practice their close combat skills without the risks associated with urban warfare.

PROGRAM STATUS

CAMOUT is fielded and operational with eight systems being utilized by Marines during combat training exercises at MCAGCC 29 Palms, CA and MCB Camp Pendleton, CA. There are another seven training systems remaining on contract with deliveries expected to take place early in FY11.

Procurement Profile:	FY 2011	FY 2012
CAMOUT	0	0

Developer/Manufacturer:
N/A

HOME STATION MOUT (HSMOUT) TRAINING SYSTEM

DESCRIPTION

The current contingency operations have established the need for Marines to conduct military operations in urban environments. The Home Station MOUT Training System has been established to meet this requirement.

OPERATIONAL IMPACT

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

PROGRAM STATUS

With projects currently under way, HSMOUT will start turning over training systems beginning early in FY11 to MCAGCC 29 Palms, CA and Camp Pendleton, CA, Hawaii, Quantico, VA, and Okinawa.

Procurement Profile:	FY 2011	FY 2012
Quantity:	8	0

Developer/Manufacturer:
Parsons Corporation, Pasadena, 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

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

PROGRAM STATUS

IED Training Lanes are currently fielded and operational at MCB Camp Pendleton, CA and MCAGCC 29 Palms, CA. These 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. NWS Yorktown has a training system on order with turnover expected early in FY11.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
N/A

ATMOSPHERICS

DESCRIPTION

Atmospherics is designed to simulate the senses of Marines, Tenants, and Joint Services (Trainees) by enhancing and upgrading existing and future USMC Military Operations on Urbanized Terrain (MOUT) and Home Station Training (HST) areas with "prop" like cultural items (furniture, billboards, vehicles, fake foodstuffs, ersatz crops, colors, smells and sights such as building facades etc.) to immerse the trainee with current operational environments needed for vital and realistic mission rehearsals.

OPERATIONAL IMPACT

The Marine Corps has an immediate requirement to enhance and upgrade existing and future Military Operations on Urbanized Terrain (MOUT); Home Station Training (HST) areas and ranges. Currently, the existing MOUT and planned HST area facilities and surrounding range areas are void of detailed cultural realism such as "prop" like items (furniture, billboards, faux foodstuffs, ersatz crops, colors and mud brick facades etc.) utilized during training scenarios. This project is designed to simulate future or current urban environments and support the warfighting skills and improve training opportunities for Marines, Tenants, and Joint Service units aboard Marine Corps ranges.

PROGRAM STATUS

Atmospherics are currently being installed at the MCB Pendleton, CA Immersive Infantry Trainer (IIT). There are delivery orders in process for the Urban Training Complex, MOUT Town and Goetche Demolition Range at MCB Quantico, VA; the IIT and JIEDDO Course at MCB Camp Lejeune, NC; and the IIT at MCB Hawaii.

Procurement Profile:	FY 2011	FY 2012
Quantity:	4	TBD

Developer/Manufacturer:
Strategic Operations, San Diego, CA

INSTRUMENTED - TACTICAL ENGAGEMENT SIMULATION SYSTEM (I-TESS)

DESCRIPTION

The Instrumented-Tactical Engagement Simulation System (I-TESS) is used to support direct force-on-force tactical engagement training. This system consists of the following type components: Small Arms Transmitter (SAT), Man-worn Detection System (MDS), Command and Control (C2 - mobile & portable versions), and Military Operations on Urbanized Terrain (MOUT) Building Instrumentation, and Simulated Battlefield Weapons.

The SAT will be used on the M9 pistol, M4/ M16, AK-47 & M40 rifles, M249, M240 & M2 machine guns. 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 Position Location Information (PLI) reporting.

OPERATIONAL IMPACT

The I-TESS system will be used in MOUT Facilities and Non-Live Fire Maneuver Ranges located at various Marine Corp bases and installations, providing the setting for the USMC Pre-deployment Training Program (PTP) and other type individual and company level training support. The Marine Corps has expressed a need to acquire and deliver training systems that provide real-time situation awareness, exercise control capabilities, and adjudicate indirect fire engagements so as to help facilitate the training exercise objectives. 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 (AAR) purposes.

PROGRAM STATUS

2400 units will be delivered to MCB Quantico, VA, Camp Lejeune, NC, Camp Pendleton, Hawaii, and 29 Palms, CA.

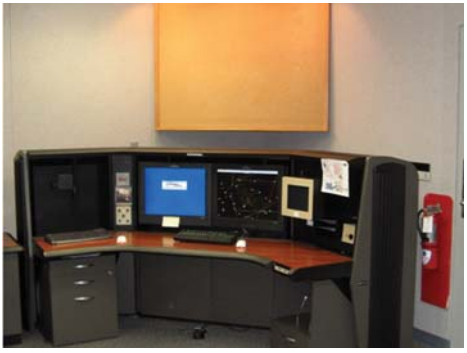
I-TESS Increment I will be fully fielded in FY11. I-TESS Increment II will be fielded from FY11 through FY16. I-TESS Increment III is anticipated to be awarded in FY13.

Procurement Profile:	FY 2011	FY 2012
Quantity:	1,200	1,200

Developer/Manufacturer:
TESS Increment I: Saab Training USA, Orlando, FL

I-TESS Increment II: TBD

INTEGRATED RANGE STATUS SYSTEM (IRSS)



DESCRIPTION

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

OPERATIONAL IMPACT

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

Procurement Profile:	FY 2011	FY 2012
Quantity:	2	0

Developer/Manufacturer:
NAWCAD, Patuxent River, MD

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.

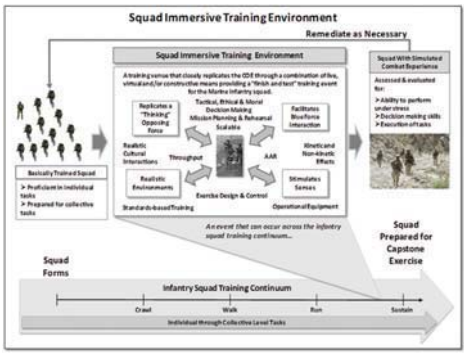
PROGRAM STATUS

The Camp Pendleton, CA Phase I Prototype has been operational since 2008. Phase II Expanded Outdoor Capability became operational in October 2010. Camp Lejeune, NC operations are scheduled to begin during Jan 2011. MCB Hawaii Next Generation MOUT with IIT capability will be operational 3d Quarter FY11.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
N/A

SQUAD IMMERSIVE TRAINING ENVIRONMENTS (SITE)



DESCRIPTION

Squad Immersive Training Environments (SITE) is an integrating training construct focused on preparing squads for missions in the contemporary operating environment. This environment provides the commander a training venue to better prepare infantry squads, while enhancing existing training systems that meet the essential training capabilities for small unit and squad leader development. SITE also provides centralized management and oversight for the small unit and squad training capabilities, with decentralized execution for development and fielding of individual increments. The program leverages efforts across the Science &Technology (S&T) community and provides means to aid the transition of most technologically advanced capabilities into Programs of Record (POR).

OPERATIONAL IMPACT

Address the following Training Capability gaps:

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

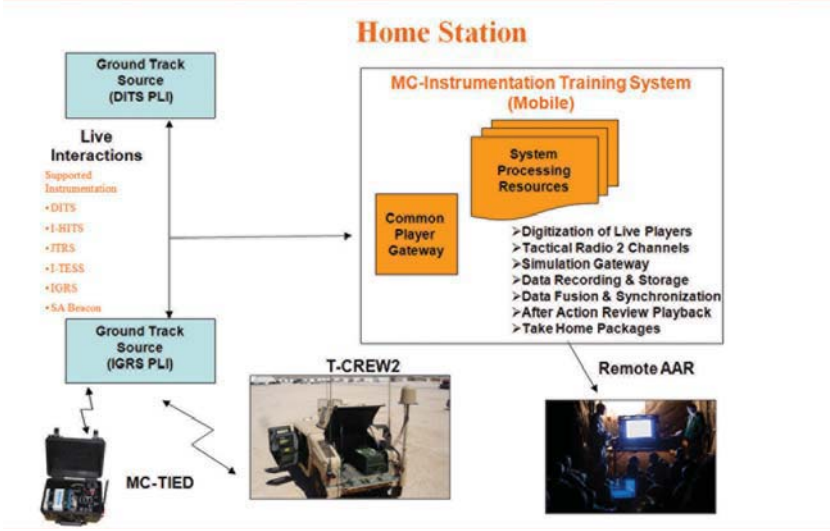
PROGRAM STATUS

An Analysis of Alternatives is currently being completed. RDT&E funds are being programmed in FY12.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
TBD

MARINE CORP INSTRUMENTATION TRAINING SYSTEM (MC-ITS)



DESCRIPTION

Marine Corps-Instrumentation Training System (MC-ITS) is an instrumentation system capable of monitoring real time live, constructive and virtual simulation exercises for the purposes of data collection, analysis, and review. Data is collected while monitoring, controlling, and recording the force-on-force or force-on-target engagements that occur in the battlefield environment. The instrumentation is capable of supporting live and virtual exercises. The purpose of this training system is to significantly enhance the training capability, operational readiness, and tactical proficiency of Marines in tactics, techniques, and procedures in support of both collective task training and exercise events. MC-ITS provides the capability to simultaneously support multiple training exercises. It provides objective data collection and analysis of unit performance in force-on-force (FOF), force- on-target (FOT), Live Fire (LF), and associated Command Post Exercises (CPX). MC-ITS integrates live training with other simulation environments to provide the doctrinally correct battle space and combat forces needed to provide tactical realism and battle-focused training across battlefield functions. The system collates training feedback materials from varied training support and simulation systems to provide a comprehensive AAR package for associated training elements. MC-ITS training capabilities significantly enhances the procedures in the employment of the Operational T-CREW2 devices and subsequent Counter-Improvised Explosive Device (C-IED). Integration of the Training - Counter Radio Electronic Warfare 2 (T-CREW2) devices and the MC-ITS will extend real-time visualization, Situational Awareness (SA), and After Action Review (AAR) capabilities thus significantly en-

hancing Counter-IED training. MC-ITS consists of the hardware and software that records, stores, displays, and replays exercise data to support T-CREW2 and Marine Corps - Training Improvised Explosive Device (MC-TIED) device training.

OPERATIONAL IMPACT

This system will be used for tracking both Ground and Air Position Location Information (G/A-PLI) systems Integrated GPS Radio Systems, Instrumented-Tactical Engagement Simulation System (IGRS-ITESS), receiving live video inputs from Tactical Video Capture System (TVCS), controlling Marine Corps –Training Improvised Explosive Device/ Training-Counter Radio Control Improvised Explosive Device (IED) Electronic Warfare (MC-TIED/T-CREW2 training events and providing an After Action Review (AAR) for Battalion sized elements and below. The system will be fielded as a Fixed Battalion set, capable of 3,000+ entities, a Company set, Portable capable of 700 entities and a Platoon set for 70 players or less.

PROGRAM STATUS

Program will be ready for production in FY12 with one unit being delivered in FY11 and 40 in FY12.

Procurement Profile:	FY 2011	FY 2012
Quantity:	1	40

Developer/Manufacturer:
Lockheed Martin, STS, 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

Installations were competed at Camp Pendleton, CA and Camp Hansen, Okinawa in FY10. TVCS has been identified to support the Marine Corps Immersive Infantry Trainer's (IIT) at three locations as well as continuing to support the Joint Improvised Explosive Device Defeat Organization (JIEDDO) by procuring eight TVCS systems for Home Station Training Lanes at three Marine Corps and five Navy sites.

Procurement Profile:	FY 2011	FY 2012
Quantity:	7	11

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

INDIVIDUAL TRAINING SYSTEMS
UNDERWATER EGRESS TRAINING (UET)

DESCRIPTION

The Modular Amphibious Egress Trainer MAET is a UET with a generic fuselage section representing specific aircraft, amphibious, cockpits and cabin emergency escape exits. The MAET dunker functions closely to the general characteristics of a "ditched" aircraft. The MAET is capable of being lowered into a pool, and turned to 180 degree rotation on its longitudinal axis. Its lifting systems (hoists, gantries) provide at a minimum a two-speed rate of descent and retract. The students are able to practice UET from the MAET as it is in an upright position, an inverted position, or in any position between zero and 180 degrees. Current systems are able to simulate CH-46, CH-53 and MV-22 configurations and are adaptable to future platforms.

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

The Shallow Water Egress Training (SWET) is an individual seat-type device used prior to and in conjunction with MAET and SVET to introduce water submersion and the proper use of current Supplemental Emergency Breathing Devices (SEBD) such as the Intermediate Passenger Helicopter Aircrew Breathing Device (IPHABD) and Survival Egress Air (SEA).

OPERATIONAL IMPACT

There is a requirement to teach underwater egress from aircraft, amphibious, and ground vehicles (SWET and SVET). Statement of Need (SON) for the SVET signed 27 June 2007 and the Urgent SON signed 3 April 2008 states that all MAET training systems shall at a minimum provide simulated training environment for drivers, crew, and passengers of the HMMWV operating in proximity to aquatic hazards. New UUNS were released in August 2010 requiring UET from the MRAP All Terrain Vehicles (MATV) as well.

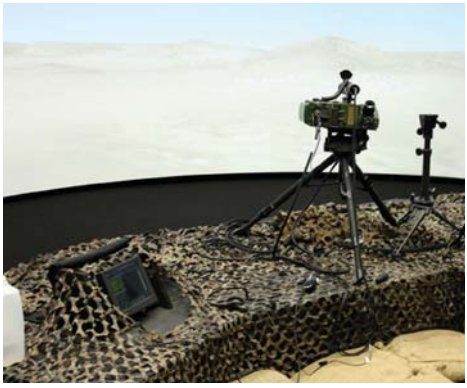
PROGRAM STATUS

Total procurement is for 16 systems: four MAET, four SVET, and eight SWET spread across Camp Hansen, Okinawa, MCB Kaneohe Bay, HI, Camp Pendleton, CA, and Camp Lejeune, NC.

Procurement Profile:	FY 2011	FY 2012
Quantity: SVET	4	0

Developer/Manufacturer:
Survival Systems Inc., Groton, CT

SUPPORTING ARMS VIRTUAL TRAINERS (SAVT)



DESCRIPTION

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

OPERATIONAL IMPACT

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

PROGRAM STATUS

Four systems have been installed, one each at: Camp Lejeune, NC; 29 Palms, CA; Camp Pendleton, CA; and Marine Corps Base, HI. Two remaining systems will be installed in FY11 at Marine Corps Air Station, Yuma, AZ and Camp Hansen, Okinawa.

Procurement Profile:	FY 2011	FY 2012
Quantity:	2	0

Developer/Manufacturer:
TJ Inc., Christmas, FL

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 Distance Education and Training (CDET), 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, CDET has fielded various distance learning suites to the major Marine Corps bases and stations. The key infrastructure components of MCDL are:

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

Available electronic courseware products include:

- Required Pre-Deployment Training and
- 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

MCDL contributes to 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. MCDL gives the commander a better-trained Marine while increasing personnel availability.

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.

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 for lieutenant colonels. During the fall of 2010 a pilot Senior Planner Course was introduced for colonels. Enlisted resident education is conducted at the six regional Staff Noncommissioned Officer Academies worldwide which offer the Sergeants, Career and Advanced Courses. The Senior Enlisted PME Course which was first introduced in 2008 is offered for master/first sergeants and master gunnery sergeants and sergeants major. The University, specifically The Lejeune Leadership Institute (LLI) also recently assumed the mission of leadership development for civilian Marines. The Civilian Leadership Development program (CDLP) will consist of a regionally delivered blended seminar learning program.

The curricula of both the resident and nonresident education programs will continue to address MAGTF 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 and 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 coor-

dinated, relevant, and meet the needs of the operating forces. Recently, the Marine Corps College of Distance Education and Training (CDET) has been given the task to develop a new series of distance learning products for delivery to all enlisted Marines needing PME. The CDET has successfully established Blended Seminar PME distance education programs for the Expeditionary Warfare School and the Command and Staff College. This innovative hybrid combines distance learning with short-duration residency periods in Quantico, VA to expand course capacity beyond historical levels, making these courses more available to USMC, joint, interagency, and partner nation officers. Students in these programs interact with a truly diverse, international blend of peers and all participate in the resident schools' graduation ceremonies.

The Center for Middle East Studies has grown into a Center for Strategic Studies which focuses on multiple regional areas of significance to the Marine Corps and the nation. The Center will continue to 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 Marine Corps students completing their PME and CDLP 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 CDET developed courses that ensures common content and uniformity; and use of technologies that link home campus with regional campuses and individual students to a greater extent than today. Regional campuses, nonresident courses, and blended seminars will permit a global education presence and centralized management of training and education resources. Through its combined emphasis on courses, symposia, and publications, MCU will continue to develop Marines, sister service members, interagency personnel, and multinational partners.

MARINE CORPS HISTORY DIVISION

The History Division's mission is to provide knowledge of the Marine Corps' past to ensure an understanding of its present and future for the Marine Corps and the American people by making its hard-earned experience and official history available for practical study and use; preserving a written, spoken and visual record of its activities and traditions by collecting papers, articles, images and interviews of lasting historical interest; and assisting in the Marine Corps' use of military history to aid in professional military education, training and to provide background and precedents for decision making. To do this, Division historians, working in close coordination with the National Museum of the Marine Corps, collect, research, write, publish and distribute accounts that are professional presentations of permanent historical value to the Marine Corps and materially contribute to the military, political and social history of the United States and its' armed forces. During 2009, the History Division moved into facilities at 3078 Upshur Avenue, Quantico, VA 22134 on the campus of Marine Corps University (MCU).

History Division has four Branches, History, Reference, Editing and Design and Headquarters. Each Branch contributes to the research, writing and editing of the official histories of the Marine Corps. Reference Branch fulfills several specific functions and to perform these functions maintains topical working files that cover five areas: specific history subjects; biographical files on prominent Marines; unit files; photo files and geographic area files. As part of its mission, the Division conducts research, 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 2010 and plans to produce two issues in 2011. 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 expanded 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/).

NATIONAL MUSEUM OF THE MARINE CORPS (NMMC)

The President of the United States dedicated the National Museum of the Marine Corps (NMMC) on 10 November 2006. Located in Quantico, VA and with an average annual visitor attendance of more than 500,000 during each of its first four years, the NMMC is one of the most popular cultural attractions in Virginia. Its exhibitions recreate environments and immerse visitors into Marine Corps action. The Marine Corps Museum's mission includes:

- Collecting and preserving objects that reflect the history of the Corps; • Interpreting Marine Corps history;
- Educating students and families;
- Conducting collections-based research; and
- Supporting the recruitment, education, and retention of Marines.

The National Museum is being constructed in phases, the first of which includes approximately 120,000 square feet. It opened with permanent galleries dedicated to "Making Marines," World War II, the Korean War, and the Vietnam War. In 2010, three additional galleries opened to tell the story of the Marine Corps from 1775 through World War I. In immersive exhibits, visitors take their places alongside Marines in battle. Aircraft, tanks, and other vehicles are prominently displayed, and period uniforms, weapons, medals, flags, and other artifacts help visitors trace the history of the Corps. Future phases will add a giant-screen theater, classrooms, an art gallery, visible storage, and more exhibition space to the flagship building. A chapel that overlooks the Museum and Semper Fidelis Memorial Park opened in October 2009. Also planned as part of the 135-acre "Marine Corps Heritage Center" are a hotel/conference center, artifact storage and restoration building, hiking trails, and additions to Semper Fidelis Memorial Park.

The NMMC reports to Marine Corps University and is federally funded and staffed by Marine Corps civilian employees and uniformed Marines. However, its construction and expansion would not be possible without the assistance of the Marine Corps Heritage Foundation. This strong public-private partnership, approved by Congress in 2001, allowed for the construction of an iconic building and the delivery of the highest-quality programs.

The strength of any history museum rests with its collections. NMMC's keystone objects that represent how Marines have waged war since 1775 — weapons, tanks, vehicles, aircraft — were transferred to the museum by the Marine Corps. But pride in being a Marine has prompted many generations of leathernecks to donate their personal items to the permanent collection. Because the museum is charged with caring for its collections — some 30,000 objects — in perpetuity, curators add to the collection very selectively, consulting a formal collections rationale for guidance. Stewardship responsibilities are divided among five broad categories: ordnance; uniforms and heraldry; aviation; art; and general

collections. Curators and collections managers work together to fully account for the collection.

As is often the case with museums, less than ten percent of NMMC's objects are on exhibition at any one time. Most of them are in storage at Marine Corps Base Quantico, while some objects are on loan to other museums around the country. A team dedicated to the preservation of aircraft, vehicles, artillery pieces, and other large artifacts completes the detailed restoration of several artifacts each year.

An in-house exhibitions team, working with curators and historians, designs and oversees permanent and temporary installations, including the Commandant's Corridor at the Pentagon. Museum educators use these exhibits to craft formal education programs that meet the needs of classroom teachers and are linked to specific standards of learning.

Education at the museum can definitely be fun, especially for ("Little Marines"), with puppet shows, hands-on activities, story-telling, trains, and gallery hunts. During the museum's second year of operation, it served more than 35,000 students in formal programs. Popular family day programs are offered on the second Saturday of each month. Marines attending formal schools also make good use of the museum as part of their professional military education. Since World War II, the Corps has been instructing a small number of Marines to "go to war and do art!" Continuing in that tradition, in 2010 the Museum deployed one artist to Haiti, and training sites in the United States to capture what today's warriors are accomplishing. More than 60 works from the combat art collection were featured in an exhibit at the USS Constitution Museum during Marine Week in Boston.

In 2009, the museum received the Themed Entertainment Association's award for Best New Museum, and the Secretary of the Navy recognized the museum with the Award of Merit for Group Achievement. The museum stands as a proud acknowledgement of the courage and commitment to duty delivered by all Marines, in support of today's Marine Corps families, and as an inspiration to the next generation of Americans.

In addition to the NMMC, command specific museums are located at Camp Pendleton, CA; Recruit Depots San Diego, CA and Parris Island, SC; and at Marine Corps Air Station Miramar, CA. These museums reflect the unique interests and objectives of those facilities. For additional information, see www.usmc-museum.org.

PART 10: INSTALLATIONS

INTRODUCTION

Marine Corps installations are part of the Supporting Establishment. They comprise primarily 15 major bases and stations in the United States, Japan and Korea — often referred to as the "fifth element" of the MAGTF — and the personnel, equipment and facilities required to operate them.

INSTALLATIONS AND MILITARY CONSTRUCTION

Marine Corps bases and stations represent an irreplaceable national asset today and as far into the future as we can project. They are fundamental to combat readiness, particularly the pre-deployment training, 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 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 202,100-strong Marine Corps.

The Marine Corps has more than $58 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, 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

The Marine Corps has a multi-faceted Military Construction program that is addressing baseline infrastructure improvements, including operational and quality of life projects, at installations and supporting the Defense Posture Review Initiative to move Marines to Guam. The FY2012 proposal of $1.4 billion is critical to maintaining and improving installations and providing adequate facilities both in the continental United States and overseas.

ENVIRONMENTAL, NATURAL, AND CULTURAL RESOURCES STEWARDSHIP

The Marine Corps serves as custodian and environmental steward of approximately 2.3 million acres of some of the most ecologically sensitive and diverse areas of the country and the world, including portions of the Sonoran Desert, some of the last remaining sub-tropical rain forest in Asia, and numerous fresh and saltwater waters and wetlands. These areas provide habitat for an abundance of wildlife species, including 59 federally listed threatened and endangered plant and animal species. These same lands contain a diversity of cultural resources, including archaeological sites and collections, historic buildings, structures, and objects, cultural landscapes, and resources of traditional, religious, or cultural significance to Native American tribes or Native Hawaiian organizations. These resources reflect thousands of years of human activity, including important developments in our Nation's history and the role of the military in that history, and embody our shared historical experiences.

Unless properly managed, Marine Corps lands can become damaged to the point where realistic training can no longer take place. Land is a finite, valuable commodity. Marine Corps use of land must be sustainable so the Marine Corps may use its lands frequently and repeatedly. In addition, the American people have placed intrinsic values on certain natural and cultural resources. These values have been translated into laws requiring the Marine Corps to protect and preserve natural and cultural resources. Failure to comply with these laws can lead to judicial, legislative, and executive decisions denying the Marine Corps access to land for training.

The natural and cultural resources on Marine Corps lands are managed through the implementation of Integrated Natural Resources Management Plans (INRMP) and Integrated Cultural Resources Management Plans (ICRMPs), respectively. These plans outline goals, objectives, and projects for the natural and cultural resource programs while supporting the installation's military mission. Management actions include implementing proven best management practices for wildlife management, forest and range management, erosion control, invasive species control, historic preservation, Native American/Native Hawaiian consultation, artifact curation, monitoring, and other resource management measures. The Marine Corps also ensures protection of these resources and enforcement of conservation laws by providing an effective and well-trained Conservation Law Enforcement element at most installations.

Stewardship of these various resources is done in coordination and partnership with numerous outside agencies and organizations including the U.S. Fish and Wildlife Service, State fish and wildlife management agencies, State Historic Preservation Offices, Native American tribes and Native Hawaiian organizations, and numerous other governmental and non-governmental organizations. By engaging in cooperative ecosystem and adaptive management approaches for sustained use of these resources, the Marine Corps preserves the land, water, and airspace needed to sustain military readiness while maximizing environmental protection.

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 FY09-13 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 FY2014.

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

By September 2007, the Marine Corps had 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 2011, 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 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 owned by the Service. Housing referral, the process of assisting military families to find housing, is still retained by the government.

Constructing deficit housing, mainly attributable to new housing requirements associated with the Grow-the-Force build up, will continue through 2014, principally at Camp Pendleton, CA, Camp Lejeune, NC and Marine Corps Air Ground Combat Center, 29 Palms, CA. 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)

The Marine Corps is using CPI to enhance readiness and warfighting capability. CPI does this by improving the understanding of warfighting support requirements and applying proven CPI tools to improve the speed, quality, and affordability of supporting processes to meet those requirements. CPI is used globally to enhance capability in a wide range of production, service, and administrative functions.

By applying CPI in a standardized and disciplined way, Marines have been increasing mission capability without increasing costs. Although the main focus is to improve readiness and warfighting capabilities, CPI also reduces costs by removing waste and non-value added work. This frees work resources, such as personnel or dollars, which can then be realigned to meet unfunded or new requirements in other parts of the organization.

Since CPI directly supports Marine Corps readiness, it is a strategic asset that has been established as a core mission capability. The Marine Corps CPI Program Office has regional CPI Support Teams of CPI experts who provide standard tools, training, and implementation support to Marine Corps organizations around the world as they develop organic CPI capability. The team members have extensive experience in leading high-impact CPI projects, assisting organizations in deploying CPI, and establishing internal CPI capability.

The use of CPI is continuing to grow in the Marine Corps and currently is deployed in 80 Marine Corps organizations with hundreds of projects completed and underway. Significant results are being achieved in numerous areas including: increasing aircraft mission ready rates; reducing the cycle time to rebuild and repair weapons systems; cutting the time to discharge Marines not completing Boot Camp, which reduced annual personnel holding costs; improving the repair process for an aircraft wing stabilizer that increased part life and reduced annual repair costs; streamlining data entry by drill instructors that decreased entry time per recruit, saving hours per day during recruit training cycle; and improving the performance and affordability of a wide range of installation support functions. Also, the Continuous Process Improvement Management System (CPIMS), an enterprise-wide software tool, documents CPI improvement projects and supports their replication across the Marine Corps.

CPI is the perfect tool for today's environment. Marine Corps commanders are using CPI to improve operational capability, reduce budget pressures, and improve quality of life for Marines and their families. The bottom line is CPI helps the Marine Corps meet mission requirements and at the same time be a good steward of taxpayer dollars.

PART 11: FORCE PROTECTION

INTRODUCTION

Force Protection covers a wide range of programs to include: Integrated Air and Missile Defense (IAMD) programs, Explosive Hazards (X-HAZ), Explosive Ordnance Disposal (EOD), chemical, biological, radiological, and nuclear (CBRN) defense equipment, and the Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)). IAMD programs comprise of the battlefield radar sensors and ground-based air defense capabilities to detect threats and neutralize enemy airborne systems. CBRN equipment provides the Marine with the necessary capability to operate in a contaminated environment and still accomplish the mission. Explosive hazards programs include counter-improvised explosive devices (IED) operations and neutralization of explosive hazards, generally. G-BOSS(E) provides Marine Corps forces with 24-hour persistent ground surveillance to display and track items of interest through the use of unique, high-resolution, day and night cameras and sensors. These types of enabling capabilities are important to achieve defense in depth and protection for the Marine and the operating forces.

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 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 combating weapons 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 FY2009. 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 the Third Quarter FY2011.

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 Multipurpose Wheeled Vehicle-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 GBAD system.

OPERATIONAL IMPACT

Using A-MANPADS and the Stinger missile, the Low-Altitude Air Defense (LAAD) battalions provide the MAGTF a low-altitude air defense against enemy air threats. LAAD units deploy with Marine Expeditionary Units as part of the Marine Air Control Group detachment. 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 Battalions. Increment I uses Joint Range Extension Application Protocol, a joint certified data link, ensuring compatibility with legacy and future C2 architectures. Increment I radios are satellite communications capable.

PROGRAM STATUS

In May 2009, the Marine Requirements Oversight Council approved the GBAD Initial Capabilities Document (ICD) that validates existing capability gaps against Low-Observable/Low-Radar Cross Section (LO/LRCS) threats. The GBAD analysis of alternatives identified candidate material solutions for the Stinger missile replacement that fills the gaps identified in the GBAD ICD. The Marine Corps will execute a service life extension program of the Stinger missile to maintain a GBAD capability as a bridge to a to-be-determined weapons system forecasted to be programmed for POM2014/2016. The future weapon system is envisioned to provide continuous, on-the-move, low altitude air defense for the MAGTF. The Program will examine future capabilities such as an integrated multi-mission turret with a gun, missiles, and directed energy that support future material/technology solutions and the joint engagement sequence on-the-move.

Procurement Profile:	FY 2011	FY 2012
Section Leader		
Vehicle	4	16
Fire Units	15	60

Developer/Manufacturer:
Naval Surface Warfare Center, Crane Division, Crane, IN

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 MAGTF's principal air surveillance radar and is integrated into the AN/TYQ-23(V)4 Tactical Air Operations Module, AN/TSQ-269 Mobile Tactical Air Operations Module (MTAOM), AN/MSQ-124 Air Defense Communication Platform (ADCP), and the AN/TYQ-87 Sector Anti-Air Warfare Facility (SAAWF).

When configured for TBM operations, the radar provides 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 is a component of the Navy's Cooperative Engagement Capability in the littoral environment and is the Marine Corps' lead sensor in the development of the Composite Tracking Network.

OPERATIONAL IMPACT

The AN/TPS-59(V)3 radar system is optimized to detect and track air-breathing aircraft targets and TBMs that constitute serious threats to MAGTF operations. The radar is employed by the Marine Air Control Squadron (MACS) during sustained operations ashore and is 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 nautical miles. The radar system is currently deployed in direct support of MAGTF operations.

PROGRAM STATUS

The AN/TPS-59(V)3 radar system is in the operations and support phase. In order to maintain the radar to 2025, an incremental sustainment strategy of engineering change proposals and technical refresh efforts will address diminishing manufacturing sources, material shortages, and obsolescence issues. The Approved Acquisition Objective is 13 radar systems.

Procurement Profile:	FY 2011	FY 2012
Quantity:	0	0

Developer/Manufacturer:
Lockheed Martin Mission Systems and Sensors (MS2), Syracuse, NY

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 fielded system that is a commercial-off-the-shelf (COTS) item that fulfilled 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

FIDS is seeking a Milestone C decision in FY2015. 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. If tied to the Army schedule, IOC for IDS is projected to be FY2015.

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 (IEDs).

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. The CREW Vehicle Receiver/Jammer (CVRJ) is the primary vehicle-mounted jammer. The Thor III Dismounted system is the in-service man-portable system. It provides coverage and protection from RCIEDs when Marines are dismounted and operating outside the protective envelop of a mounted or fixed-site CREW system. Marine Corps CREW will sustain 336 Thor III systems. 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 Joint CREW (JCREW) 3.3 Capabilities Development Document was approved December 2008. JCREW 3.3 is the next iteration of CREW systems, and its planned Marine Corps Approved Acquisition Objective is 3,903 systems. The JCREW 3.3 Initial Operational Capability is scheduled for FY2013 and Full Operational Capability is scheduled for FY2015. The Joint CREW Program Office is the lead acquisition agency for CVRJ and future JCREW 3.3 systems.

Developer/Manufacturer:
CVRJ: International Telephone and Telegraph (ITT), White Plains, NY

Chameleon: General Dynamics, Falls Church, VA

Thor III: Sierra Nevada Corporation, Sparks, NV

IMPROVISED EXPLOSIVE DEVICE DETECTOR DOG (IDD)

DESCRIPTION

The IDD is a Military Working Dog (MWD) that is trained by a government contractor to detect improvised explosive devices (IEDs) off leash. The IDD provides select units of the Ground Combat Element (GCE) with the capability to rapidly and reliably detect IEDs, while providing a standoff distance for the IDD handler and supported unit. IDDs are conditioned to maintain the operational tempo of the GCE, live and work in austere environments, and function effectively despite the sights, sounds, and smells of war. Because IDDs must live in close proximity with Marines and are trained for off leash use, often near civilians, the nonaggressive Labrador Retriever breed has been selected as the most suitable stock for IDDs. An IDD team consists of a contractor trained and certified dog with a contractor-trained IDD handler from the GCE (not a Military Police handler). The IDD handler is selected from the supported unit, this reduces or eliminates the training and integration requirements that would be necessary if the MWD team was sourced externally. The IDD is capable of searching all types of urban and rural areas, including buildings (occupied, unoccupied or derelict), routes, vehicles, and open areas.

OPERATIONAL IMPACT

All GCE units deploying in support of overseas contingency operations (OCO) are provided IDDs. IDDs can sniff out explosives much more effectively than electronic sensors can detect and can clear dangerous areas much more quickly. They also have the agility and mobility necessary to handle the tough terrain and conditions encountered during combat operations. IDDs are capable of accompanying their handlers on all common modes of transportation, with minimal logistics support.

PROGRAM STATUS

The Marine Corps has expanded its IDD pool in response to MARCENT requirements. The IDD program is largely the result of the surge in MWD requirements coming from OEF/OIF. There are an additional Military Police (MP) MWDs assigned to each Marine Expeditionary Force (MEF). Infantry, Artillery, and Combat Engineer Battalions are the GCE units with the bulk of the IDDs.

GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM (EXPEDITIONARY) (G-BOSS(E))

DESCRIPTION

The G-BOSS(E) is a ground-based surveillance system that provides Marine Corps forces with 24-hour persistent display and tracking of items of interest through the use of 360-degree high-resolution cameras with enhanced target recognition, radars, and unattended ground sensors. This capability is required to provide the commander situational awareness, contribute to the Joint Counter-Improvised Explosive Device fight, track intra-theater insurgent movement and activities, and capture and document insurgent cross-border activities from forward operating bases (FOBs) and temporary tactical locations that rely on unimproved roads with limited ground vehicle support, limited existing infrastructure, and little engineering and systems support. The system is expeditionary, mobile, lightweight, self-contained, easily transportable (HMMWV, MRAP, helicopter) and is capable of networking with existing theater systems and interoperable with other surveillance systems.

OPERATIONAL IMPACT

This will be a MEF-level asset to be employed by the lower-echelon units based on the assigned mission. The system allows for operation at permanent installations, FOBs, combat outposts (COPs), and temporary tactical locations to observe the perimeter, avenues of approach, and/or areas of interest. The Heavy variant will be used at larger long-term FOBs and COPs for both long-range and close-in surveillance to observe areas and avenues of potential enemy approach. The Medium (light trailer-transportable) variant and Light (man-transportable) variants will provide company size maneuver elements with surveillance and detection capabilities at smaller, short-term tactical locations.

PROGRAM STATUS

The G-BOSS system is operational within the Marine Corps based on numerous Urgent Universal Need Statements (UUNS); the program office is procuring and delivering G-BOSS Tower, G-BOSS Lite, and Cerberus Lite systems to theater while continuing to move forward on the transition to the G-BOSS(E) Acquisition Program that will consist of a mix of the Heavy, Medium, and Light variants. G-BOSS(E) is seeking a Milestone B decision in FY2011 and anticipating Initial Operating Capability (IOC) in FY2015 and Full Operational Capability (FOC) in FY2019.

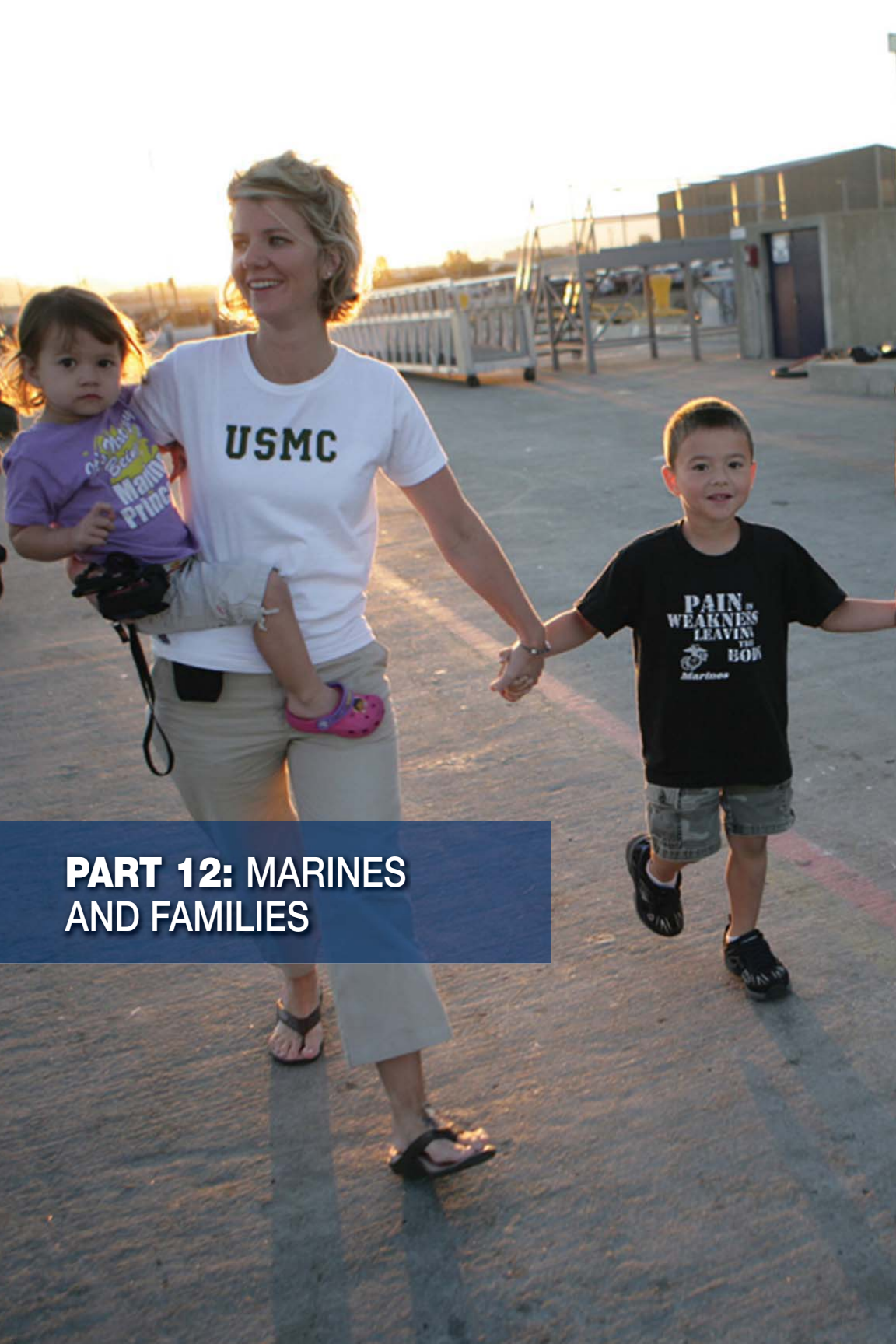
MISSION ASSURANCE

Mission Assurance is the ongoing process of achieving a state of Force Protection that preserves and conserves the force's mission essential functions and capabilities. Force Protection is attained through many inter-dependent programs and activities, facilitated and integrated for greater effectiveness through the Mission Assurance process. Comprehensive, integrated protection of key facilities, bases, stations, installations, and supporting infrastructure preserves the capability to generate, project, and sustain combat power essential to execute the National Military Strategy. Successful Mission Assurance includes:

- Facilitating collaboration and integration across functional areas and protection-related programs by providing the policies, tools, and mechanisms to drive integration; developing increased awareness of the interdependencies between programs and activities and their net effect on overall system capabilities; and enabling better informed risk-based decision making and resourcing
- Achieving appropriate staffing and training levels, along with managerial and programmatic efficiencies for common protection functions such as risk management, readiness reporting, and resource allocation
- Identifying, preserving, and even increasing those significant operational redundancies that are critical to protection but might otherwise be mistaken for inefficiency
- Partnering with external stakeholders to identify and reduce the risk to assets, systems, networks, and functions on which the Marine Corps is critically dependent, but does not own, operate, or control

The Deputy Commandant for Plans, Policies, and Operations (DC PP&O) serves as the Force Protection Advocate for the Marine Corps. In this capacity, DC PP&O is responsible for identifying operational risks in protection across the force and advising the Commandant on priorities for mitigation and corresponding resource allocation across various ongoing, planned, and new Force Protection programs and activities. The DC PP&O coordinates with the Deputy Commandant, Installations and Logistics (DC I&L) and Deputy Commandant, Combat Development and Integration (DC CD&I) as primary partners in managing protection-related requirements and processes.

The Marine Corps is working diligently to advance mission-essential Force Protection requirements in specific areas such as Anti-Terrorism (AT); Marine Corps Critical Infrastructure Program (MCCIP); Continuity of Operations (COOP); Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Preparedness; Pandemic Influenza/Infectious Diseases Response; Emergency Management; Law Enforcement (LE); Combating Terrorism (CbT); and Force Protection (FP) and the operating forces. The desired end state is to provide commanders with disaster resilience against all-hazards threats.



PART 12: MARINES AND FAMILIES

TAKING CARE OF MARINES AND FAMILIES

As Marines continue to fight with distinction, we are keenly aware that the well being of our families is inextricably linked to the readiness of our Corps. Family members support our warfighters, sustain and care for their children, and continue to be community advocates who help encourage our most fragile families experiencing deployments for the first time. The spouses, children and parents of our Marines deserve our unwavering support.

While we recruit Marines, we retain families. With more than 49 percent of our Marines married, we believe that investment in our families is critical to the long-term health of our Corps. For our active-duty population, we have more than 98,000 spouses, 115,000 children, and 500 dependent parents and other dependents.

The Marine Corps is a young force, with an average age of 25 years. Almost half of our enlisted force is between the ranks of private and lance corporal (pay grades E-1 to E-3), and almost 70 percent of Marines are on their first enlistment. Our personal and family readiness planning carefully considers these demographics.

Family readiness is a combat multiplier, equally important as individual, equipment, and combat readiness. It is the ability of the individual Marine and their family to successfully balance life, career, and mission events and is supported by the enduring partnership between the unit's Family Readiness Command Team and Marine Corps Community Services (MCCS). The quality and availability of these programs is critical to the resiliency and readiness of Marines and their families.

We have initiated the development of a systematic standardized family readiness support system, through the Unit, Personal, and Family Readiness Program. It is designed to work across functional lines to build and sustain the capacity of military families to care for themselves and mutually support one another within the Marine Corps community. As part of this program, we have established full-time, primary-duty civilian Family Readiness Officers to support commanders at the unit level. We have also developed an inventory of LifeSkills training courses that specifically address the challenges of military, personal and family life.

The Marine Corps has transformed the Exceptional Family Member Program to ensure that enrolled family members are provided a continuum of care. During the past year, the number of exceptional family members has increased 43 percent, due in large part to our program improvements, building trust and confidence in the program, and reducing the stigma associated with seeking assistance. The Marine

Corps has also established School Liaison billets at the headquarters, regions, and installations. They form strong partnerships with schools and other supporting agencies to improve access and availability to quality education.

Additionally, we leverage multiple strategies to address child-care requirements through Child Development Centers on installations, on- and off-base Family Child Care Homes, and cooperative agreements/partnerships in the community. We are developing a master plan to validate requirements and to guide our future plans and programming actions within this important program.

In addition to these efforts, the Marine Corps provides a profile of programs designed to develop resiliency and coping skills, as well as prevent, identify, and holistically treat stress problems caused by combat or other operations. We understand that protecting and strengthening the health and well being of Marines and their families requires an integrated, broad-based effort by the entire Marine Corps community. When leaders at all levels adopt a proactive, public-health approach and partner with health care professionals, educators, and law-enforcement agencies, high-risk populations can be identified. Focusing prevention efforts on those at risk can reduce the potential for incidents to occur, better allocate limited resources, and improve resiliency in Marines and their families. The Marine Corps is restructuring behavioral health as an integrated program involving Suicide Prevention, Combat and Operational Stress Control (COSC), Sexual Assault Prevention and Response, Substance Abuse, and Family Advocacy. We have also broadened the scope of our Executive Force Preservation Board to focus on all behavioral health concerns.

The Marine Corps is creating new, dynamic Suicide Prevention training programs that are targeted toward non-commissioned officers, staff-non-commissioned officers, commissioned officers, and family members. We have also established COSC and Operational Stress Control and Readiness (OSCAR) training as a primary prevention tool to help Marines

identify and mitigate early signs of stress and to encourage them to seek help within the unit setting. Senior and junior Marines are being trained to function as OSCAR Mentors. They actively engage Marines who evidence stress reactions, liaison with OSCAR Extenders (i.e., existing medical providers, corpsmen, chaplains, and religious program specialists), and advocate for fellow Marines regarding stress problems. The Marine Corps is also developing a pilot DSTRESS Line with TRICARE

to provide Marines, family members, and significant others with information, referral services and access to behavioral health care (pilot program currently available in TRICARE region West only).

To contribute to the readiness, resiliency, and retention goals of the Corps, the Semper Fit and Community Support Program is being redesigned and improved. We are beginning a multi-year program enhancement plan beginning with the restructure of the Headquarters Marine Corps program office. Enhancements include expanding recreation programming, combat conditioning/functional fitness for combat readiness, therapeutic recreation for wounded warriors and Exceptional Family Members, and sports programs that contribute to the physical training needs of a unit.

As a further example of the Marine Corps' commitment to taking care of our Marines and their families, Marine Corps leadership has affirmed that we must aggressively support the professional and personal development pursuits of every Marine. During the past year we have conducted extensive program reviews and are taking action to restructure and integrate several programs to better serve Marines, regardless of their career intentions. These programs include Voluntary Education, Transition Assistance, Family Member Employment Assistance, and the Personal Financial Management Program. This integrated program delivery will provide "one-stop shopping" and help Marines establish their personal and professional roadmaps, not only to be successful in the Corps, but also during and after their transition to civilian life.

Marines and their families are the Marine Corps' most precious assets, and therefore improving quality of life and "taking care of our own" will remain one of our highest Marine Corps priorities. We will continue to support efforts to identify and resolve gaps in programming, dissolve overlapping or duplicative efforts, and leverage opportunities to develop partnerships and share resources. The Marine Corps remains committed to shaping and sustaining these vital quality of life services to meet the needs of Marines and families, especially during a time of war and constrained fiscal environment.

QUALITY OF LIFE (QOL)

Our Nation is at war — a war that demands that the Marine Corps evaluate the support systems necessary to mitigate the stress on our force and families and to improve their quality of life. The Marine Corps is committed to providing Marines and their families with a comprehensive and effective quality of life support system.

To ensure the best possible support to families, the Marine Corps conducts surveys, program assessments, and town-hall meetings to identify gaps in the support network and develop plans for their remediation. Additionally, the Marine Corps is working to close critical gaps in program delivery by assessing the needs of Marines and families — to include those serving in remote and independent duty assignments — and conducting efficiency and program prioritization reviews to ensure we are optimizing resources. We also leverage support from local, state, and federal agencies and partner with the Office of the Secretary of Defense and our Sister Services to improve support capabilities. This is an important part of our planning and ability to deliver adequate services, regardless of duty station or assignment.

MANPOWER RECRUITING

FY 2010 was an extremely productive year for the Marines of the Marine Corps Recruiting Command (MCRC) as they transitioned from a posture of growth of forces to one of stabilization. The Marine Corps reached its end strength, as defined by federal law, of 202,100 in FY 2009. During FY 2010, MCRC shifted focus of the Marine Corps' recruiting missions in order to solidify the size of the Marine Corps and lay the foundations for the future. MCRC has continued its highest-quality standards, recruiting an exceptional pool of America's finest for recruit training. Our mission was achieved under the continued challenge of recruiting during wartime, testing the ability and professionalism of our recruiting force. The Marines of Marine Corps Recruiting Command once again far surpassed their mission requirements and exceeded all quality and quantity benchmarks.

Recruiting remains the lifeblood of our Corps. The ability of the Marine Corps Recruiting Command not only to 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 our 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, our Corps has not wavered in accessing only the most qualified applicants. In addition to recruiting our 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 our Nation and its Corps. The individual recruiter serves as the most influential factor inspiring applicants to take up the challenge of serving as United States Marines, who once transformed, will be Marines for life.

Selection to recruiting duty is a unique and highly discerning process. 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 representatives of the best non-commissioned

officers and staff non-commissioned officers 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 his or her 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 our 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 the recruiter's 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 create and maintain 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 our message and, as a result, remains the focus of our advertising efforts. As advertising costs continue to increase, it is imperative that our advertising budgets remain competitive in order to ensure that our recruiting message reaches the right audience. This is especially true as we move forward into FY 2011 and beyond, as the strength of our 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.

The Marine Corps Recruiting Command achieved unprecedented success in FY 2010 by making 100.1 percent of our enlisted shipping objectives to include exceeding all Department of Defense and Marine Corps quality standards. For example, 99.7 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, 72.8 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 100.0 percent of its recruiting goals with the accession of 5,868 Non-Prior Service Marines. Of these, 99.7 percent were Tier I high school graduates and 74.6 percent were in the I-IIIA mental groups. In addition, the Marine Corps recruiting command accessed 4,209 Prior Service Marines into the Marine Corps Reserves, achieving 100 percent of the objective.

Success was also achieved by obtaining 100.2 percent of the officer mission. The U.S. Naval Academy and Naval Reserve Officer Training Corps are contributing an appropriate percent to meet the overall annual officer requirement. In doing so, our Officer Selection Teams are now able to focus on the college campus market for contracting future officers through the Platoon Leaders Class Program. This will ensure that the quality of our future Officer Corps is maintained well into the future.

In all recruiting efforts, diversity in the enlisted and officer ranks remains an important priority for the Marine Corps Recruiting Command. Increased awareness in underrepresented markets will remain a key aspect of our marketing and advertising campaigns. This will be augmented by our enhanced outreach efforts, as we strive to have a physical presence at key events interacting with prospective applicants and their influencers. This increased focus on diversity must continue as we work to better mirror the diversity of our country.

The superior results achieved by the Marine Corps Recruiting Command during FY 2010 ensured that the command continued its legacy of success. Marine Corps Recruiting Command recognizes that during FY 2011 and beyond there will be new challenges, both expected, and unexpected; however, the command is well positioned for continued success. The Marines of Marine Corps Recruiting Command will move into the next fiscal year with the same level of intensity as they generated in the past. This intensity was a key to our past success and is a foundation for our future prosperity.

MARINE CORPS RECRUITING INFORMATION SUPPORT SYSTEM (MCRISS) – RECRUITING SUB-STATION (MCRISS-RSS), OFFICER SELECTION SYSTEM (MCRISS-OSS) AND PRIOR SERVICE RECRUITING (MCRISS-PSR)

DESCRIPTION

The deployment of the Marine Corps Recruiting Information Support System – Recruiting Station (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 from the U.S. Military Entrance Processing Command by electronically scheduling applicants for processing and receives electronic processing results. MCRISS-RS interfaces with 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 by organizing every effort and providing the proven framework of systematic recruiting. Systematic recruiting establishes procedures for standardization, management/planning, training, and action by focusing the OSO, RSS SNCOIC and recruiter on those activities and programs vital to effective recruiting. MCRISS-RSS will encompass all eleven components of enlisted systematic recruiting while MCRISS-OSS will encompass the fourteen components of officer systematic recruiting. This effort will further eliminate redundant data entry and save the most valuable asset: time.

OPERATIONAL IMPACT

Time is the officer or enlisted recruiter's greatest challenge and most precious asset. A recruiter's achievement and success is 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, thereby saving time and making the demanding task of "mission accomplishment" more efficient and effective. With added organization, the recruiter will be armed to conduct prospecting in an efficient manner, thus saving time and ensuring consistency in the execution of prospecting plans.

PROGRAM STATUS

Procurement Profile: FY 2011 efforts will deploy MCRISS-RSS and MCRISS-PSR, which is the Prior Service Recruiting (PSR) tool to prospect for former Marines to fill the ranks of the Marine Corps Reserve.

Developer/Manufacturer:
Stanley Associates, Arlington, VA

MARINE CORPS RETENTION

ENLISTED PERSONNEL

Enlisted retention achievements contribute to the Marine Corps' success in reaching key end-strength milestones and ensuring the proper grade shape and experience in the enlisted career force. The Marine Corps continues to retain both first-term and subsequent-term enlisted Marines at unprecedented levels in order to shape the Non-Commissioned Officer and Staff Non-Commissioned Officer leadership required for a 202,100 active component end strength. Our retention efforts match the required skills and grades necessary for a 1:2 deployment-to-dwell time ratio. In FY 2010, we achieved our desired end strength and enforced strict first-term boat-space caps. Achieving mission seven months into the fiscal year, we achieved an unprecedented 99.6 percent military occupational specialty match, which ensures proper grade shaping for the future career force. 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 432 career planners who specialize 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 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, Advanced Course, and Infantry Unit Leaders Course. It conducts command visits at home and abroad, 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 has been 90.5 percent. For FY 2010 we achieved a retention rate of 93.6 percent. Regardless of this great 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 our Total Force team. Marines at all ranks recognize, more than ever before, the importance of our Civilian Marines who provide critical support in numerous areas throughout the Corps. Having grown in force by more than 5,000 in recent years, Civilian Marines currently total approximately 25,000.

Civilian Marines are taking on more challenging and diverse roles. Serving primarily as a major element of the supporting establishment, Civilian Marines are now called upon to serve in positions traditionally occupied by military personnel and deploy along with our operational forces.

The Marine Corps is focused on ensuring we have 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 and reward our 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 for Civilian Marines. Civilian Marines are afforded the opportunity to advance their career development through centrally managed programs administered through the Training and Education Command. Opportunities exist for both new/entry level and senior/expert level employees to participate in numerous programs, courses, and seminars. For example, the Marine Corps Acculturation Program provides Civilian Marines with the opportunity to understand their role(s) in supporting the mission of the Marine Corps. They learn about Marine Corps culture and history as well as the strategic mission of local commands.

The Civilian Marine Mentoring Program enhances the Corps' ability to transform our civilian workforce into a high-performance culture providing a skilled, capable workforce to face the challenges of the future. Mentoring is supported through leadership development as a technical professional development initiative.

The Civilian Workforce Development Application (CWDA) assists the Marine Corps in managing civilian workforce development activities. CWDA is a web application that contains data related to leadership and functional core competencies of the Communities of Interest. The long-term vision for CWDA is that it will facilitate organizational management and workforce shaping.

COMMUNITY MANAGEMENT

Communities of Interest (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 twenty 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 and serve as advocates for Civilian Marines who work in the job series within their COI.

STRATEGIC WORKFORCE ASSESSMENT AND PLANNING

Across the Nation, Federal agencies and the private sector alike are experiencing the impacts of an aging workforce as greater numbers of employees retire. The shape and size of the civilian workforce is often challenged by developing technology and funding constraints. The Marine Corps has begun a new initiative to adapt to these changes called Strategic Workforce Assessment and Planning (SWAP). SWAP aims to understand trends and upcoming changes in the civilian workforce through demographic analysis, pinpointing the areas which will be most affected by these trends and implementing new policies to improve programs and planning. Findings from SWAP analyses aid in employee recruitment by identifying current and upcoming skill gaps and developing targeted recruitment programs to fill these gaps. Data collected through SWAP also helps the Marine Corps assess the experience level and expertise of its existing workforce, ensuring that civilian workforce development can implement human capital management programs for employee development that are in line with the workforce's current and future needs. In addition, SWAP aims to formulate goals and objectives that will make the Civilian Marine hiring process more efficient.

A Human Capital Management Assessment is published annually to illustrate the results of SWAP analyses and their impact on the Marine Corps, and to ensure that the civilian workforce is aligned with the Marine Corps mission now and in the future.

LABOR RELATIONS

The Marine Corps maintains relations with nine Federal unions 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. To enhance morale and productivity, limit job turnover, and help organizations increase performance and improve business results, the Marine Corps has negotiated contracts with local labor organizations at various installations. These are in addition to the Master Labor Agreement with the American Federation of Government Employees, the largest labor organization representing appropriated fund and non-appropriated fund employees throughout the Marine Corps. 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.

MARINE CORPS RESERVE

Reserve Marines understand the need to protect the American way of life. Dedicated men and women continue to volunteer to serve their country in the Marine Corps Reserve and share the sacrifices made by the Total Force in today's conflicts. The Marine Corps Reserve fills critical requirements in support of overseas contingency operations, operations and non-contingency Combatant Commander requirements. At home, Marine Forces Reserve maintains Reserve Marines and assets pre-positioned throughout the country that are ready to assist 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 meet its recruitment objectives. New Marines are accessed into the Marine Corps Reserve at a rate of 20 to 25 percent of the Selected Reserve's end strength per year, enabling continued capability to augment and reinforce the Active Component. The Marine Corps Reserve has implemented the Officer Candidate Course – Reserve (OCC-R) in order to increase the number of company grade officers serving with the reserve component. This program will enable the Marine Corps Reserve to meet the Defense Planning and Programming Guidance and increase manning levels to a minimum 95 percent level for these billets.

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 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 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.

WOUNDED WARRIOR REGIMENT (WWR)

Established in 2007, the Marine Corps' Wounded Warrior Regiment (WWR) provides and facilitates non-medical care to combat and non-combat wounded, ill, and injured (WII) Marines, and Sailors attached to or in direct support of Marine units, and their family members in order to assist them as they return to duty or transition to civilian life. The Regimental Headquarters element, located in Quantico, VA, commands the operations of two Wounded Warrior Battalions located at Camp Pendleton, CA, and Camp Lejeune, NC, and multiple detachments in locations around the globe.

In just a few years, the WWR has quickly become a proven unit providing WII Marines, their families, and caregivers support to help them through the processes of recovery and transition. The Marine Corps care model is unique in that its approach is to ensure recovering Marines return to their units as quickly as their medical conditions will allow. Allowing Marines to "stay in the fight" is what makes the Marine Corps care model successful.

Whether a WII Marine is assigned to the WWR (or one of its subordinate elements) or remains with their parent command, each one requires varying levels of support and care, depending on their stage of recovery. There is no "one size fits all" response to warrior care. The WWR has evolved its structure to ensure that WII Marines and families receive individualized care, proportionate to their existing needs. The Regiment achieves this individualized care by synergizing its diverse assets and external assets (e.g., federal agencies and private organizations) around the essential point of focus: the mind, body, spirit, and family of the WII Marine. Primary WWR assets and support include:

- **Marine leaders:** Leaders play a key role in motivating their Marines to stay focused on their abilities to optimize their recovery and return to full duty or to successfully reintegrate into their civilian communities. The WWR ensures leaders have the tools and information they need to help their Marines make informed decisions.
- **Recovery Care Coordinators (RCCs):** RCCs serve as the WII Marine's ultimate point of contact to help them define and meet their individual goals for recovery, rehabilitation, and reintegration, and to identify the services and resources needed to achieve these goals. RCCs regularly meet with members of their Marines' recovery teams to improve care delivery and ensure goals stay on track.
- **Medical Section:** The WWR headquarters has a Medical Section that advises the Commanding Officer regarding medical issues and emerging technologies and treatments impacting WII Marines. The section includes a Regimental Surgeon, Mental Health Advisor, Nurse Case Manager, Psychological Health Program Coordinator, Traumatic Brain Injury Program Coordinator, and Licensed Clinical Consultants. Together, this team works with public and private medical providers to ensure the

best care for WII Marines, particularly in the areas of post-traumatic stress and traumatic brain injury.

- **Warrior Athlete Reconditioning Program:** Under this program (which is mandatory for all Marines joined to the WWR, but tailored to accommodate their medical limitations), Marines engage in both physical and cognitive activities outside the traditional therapy setting. Activities are individualized to the WII Marines' needs, and encompass more than 18 areas, from aquatic training to yoga. Both in individual or team settings, the program greatly improves WII Marines' overall physical and mental fitness.
- **Charitable Giving Office:** This office coordinates the reception and distribution of donations and invitations. It helps WII Marines, Marine veterans, and their families who may be struggling to meet their financial obligations or who would benefit from an entertainment or educational opportunity.
- **Chaplain Services:** The mission of the WWR Chaplain is to provide spiritual and emotional care to WII Marines, their families, and staff. The WWR has chaplains located at the Regiment, its Battalions, and Landstuhl, Germany.
- **Job Transition Cell:** To enhance community reintegration for WII Marines who will not return to duty, the WWR's Job Transition Cell (manned by Marines and representatives of the Departments of Labor and Veterans Affairs) proactively reaches out to identify employers and job training programs to help them obtain positions where they are most likely to succeed and enjoy promising careers.
- **Sergeant Merlin German Wounded Warrior Call Center:** The Call Center, dedicated to a fallen Marine who was severely injured in a roadside blast in Iraq in February 2005, is a 24/7 operation that receives calls for assistance and also conducts outreach calls to Marines and Marine veterans to determine if their needs are being met, offer assistance, and follow-on monitoring to ensure issue resolution. The Call Center's toll-free number is 1-877-487-6299.
- **District Injured Support Cells (DISCs):** DISCs are mobilized Reserve Marines who are located throughout the country to conduct face-to-face visits and telephone outreach to WII Marines and their families who are recovering within their assigned region.
- **Family Support Staff:** The WWR's Family Support Staff includes Family Readiness Officers and Family Support Coordinators who provide care to the families of WII Marines throughout multiple phases of recovery and in geographically dispersed locations.
- **Integrated Disability Evaluation System (IDES) Support:** The WWR has Regional Limited Duty Coordinators who help Marines processing through the IDES and Wounded Warrior Attorneys who advise and support WII Marines through this process.

The WWR and its strategically placed assets have contacted or provided support to nearly 25,000 Marines through 2010.

PART 13: ENERGY

EXPEDITIONARY ENERGY

On 1 October 2009 the Marine Corps reorganized its headquarters staff and created the Expeditionary Energy Office as directed by the Commandant of the Marine Corps at the USMC Energy Summit, held in Washington, D.C. on 13 August 2009. The Commandant charged the Expeditionary Energy Office with the mission to "analyze, develop, and direct the Marine Corps' energy strategy in order to optimize expeditionary capabilities across all warfighting functions." Scheduled for release in early 2011, the USMC Expeditionary Energy Strategy is the framework that communicates the Commandant's vision, mission, goals and objectives for expeditionary and installation energy. The strategy also serves as the foundation for energy investments and management across the Marine Corps from "Bases to Battlefield." Those energy investments can be sorted in three primary areas: expeditionary energy; facilities energy; and garrison mobile equipment.

Seventy percent of Marine Corps logistics movement on the battlefield in Afghanistan is for fuel and water; each day our forces consume more than 200,000 gallons of fuel. Our demand for battlefield energy has increased exponentially in the last ten years and is rising. The total Marine Corps operational petroleum use in 2009 was approximately 5.2 million barrels, or some 16 percent of the Department of the Navy total. Ninety-four percent of what we use is for operational purposes.

This demand for battlefield energy increases risk and constrains our operations. It also costs lives: six Marines were wounded during a three-month period in 2010 while supporting 299 fuel/water convoys. That is one wounded per every 50 fuel and water convoys.

The 35th Commandant's Planning Guidance directed the Marine Corps to transform the way we use energy. The priority is to save lives by reducing the number of Marines at risk on the road hauling fuel and water. Our objective is to allow Marines to travel lighter — with less — and move faster through the reduction in size and amount of equipment and the dependence on bulk supplies.

In late 2009, in response to CMC direction, we established the Experimental Forward Operating Base, or "ExFOB," to identify and evaluate new capabilities to make combat units more energy self-sufficient in today's fight and in the future. In less than a year's time, we sourced commercial and Marine program tech-

nologies, trained an Infantry Company with renewable energy technology, and deployed them to Afghanistan in the Winter 2010.

In early 2011, we issued a comprehensive Expeditionary Energy Strategy and Implementation Planning Guidance, which set goals, performance metrics, and a plan for implementation out to 2025. The strategy serves as the foundation for energy investments and management across the Marine Corps, from "Bases to Battlefield."

Also in early 2011, we took a critical step to institutionalize the energy strategy by establishing formal requirements via the Expeditionary Energy, Water, and Waste Initial Capabilities Document to drive our investments in equipment, training, and manning. These requirements aim to reduce energy demand in our platforms and systems, increase the use of renewable energy, and build an ethos around energy efficiency in the Corps.

The Marine Corps is driving energy performance requirements into its ongoing procurement activities and is initiating programs to upgrade its current systems. It is prominently including energy concerns into its priorities for Science and Technology (S&T) and Research and Development (R&D), and actively pursuing emergent technologies to meet its needs.

Initial investments in current programs and new areas put us on track to achieve our energy-efficiency goals for 2025. These include:

- Implementing mobile electric power sources to achieve 17 percent fuel efficiency improvement, beginning in 2010 (Army funded development/Marine Corps funded procurement)
- Fielding Enhanced Efficiency Environmental Control Units (E3CU) to achieve 15-30 percent power efficiency improvement. This next-generation family of ECUs will begin entering service in 2014
- Implementing deployable renewable energy alternative modules and ground renewable expeditionary energy systems (SPACES and GREENS and On-Board Vehicle Power)
- Implementing improved environmental control units in vehicles and trailers (e.g., MRAPs/LAVs)
- Developing hybridization and other fuel economy improvement ECPs for MTVRs to reduce the total ownership cost.

Additional efforts to drive energy efficient, combat capability development include:

- Urgent Statement of Needs (USONs) for Energy-Efficient Lighting for Expeditionary Shelter System
- USONs for Expeditionary Shelter System Energy-Efficient Insulating Liner
- Office of Research and Development change for Family of Tactical Soft Wall Shelters
- Energy Efficiency Key Performance Parameter (KPP) to be included in Ground-Based Optical Surveillance System (Expeditionary) (G-BOSS(E)) Capability Development Document.

The Marine Corps will be the leader in expeditionary energy capabilities for the U.S. military. Current S&T investments, via ONR and MCWL, to drive future capabilities including:

- Improved power density in battery, chargers, and power adaptors for highly mobile forces
- Advanced integrated solutions for electrical power generation and distribution
- Lightweight Power Systems for Dismounted Marine Squad Applications
- Increase energy harvest from the sun in a small light weight package that can be deploy from the sea and handle the rigors of an expeditionary environment
- Improved fuel efficiency of vehicles and aircraft
- Improved training and education that includes energy and resource efficiency

INSTALLATIONS ENERGY

The Marine Corps recognizes the operational imperative to address energy strategy at all levels of leadership and in all theaters of operation, from our "Bases to the Battlefields." Critical to the success of this imperative is a shared "ethos" within our force that efficient use of vital resources increases our combat effectiveness. We must educate and inform everyone who lives, trains, and works on our installations — the energy users — about their daily impact on the energy footprint and then provide them with the tools to manage and improve their energy and water use. Awareness starts with an understanding of the value of energy, at home and to the mission, and then ends with accountability.

The Marine Corps energy strategy as it applies to installations is based on the Commandant's Facilities Energy and Water Management Program Campaign Plan ("Ten by Ten"). These goals, developed as a proactive response to increasing federal energy and water mandates, set the Marine Corps on the path toward efficient and judicious use of resources. 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.

The USMC Expeditionary Energy Strategy expands on the "Ten by Ten," incorporates commercial vehicle energy usage, and provides the additional guidance and the specific actions required to implement the strategy. There are five key enabling concepts to strategy implementation: awareness and accountability; measuring and improving performance; energy efficiency as a component of planning; proactive employment of new technologies; and energy security and environmental stewardship.

GARRISON MOBILE EQUIPMENT (GME)

GME is a centrally managed program of off-the-shelf, commercially available equipment that focuses on supporting installations 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. The fleet includes more than 14,000 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 in order to minimize use of tactical vehicles in garrison.

The Marine Corps has 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 stations where needed to complement the increase in alternative fueled vehicles.

Of special note, the Marine Corps is testing hydrogen-powered fuel cell vehicle operations and has established a hydrogen generation and refueling station at Camp Pendleton, California. A second facility is planned for use in Hawaii.