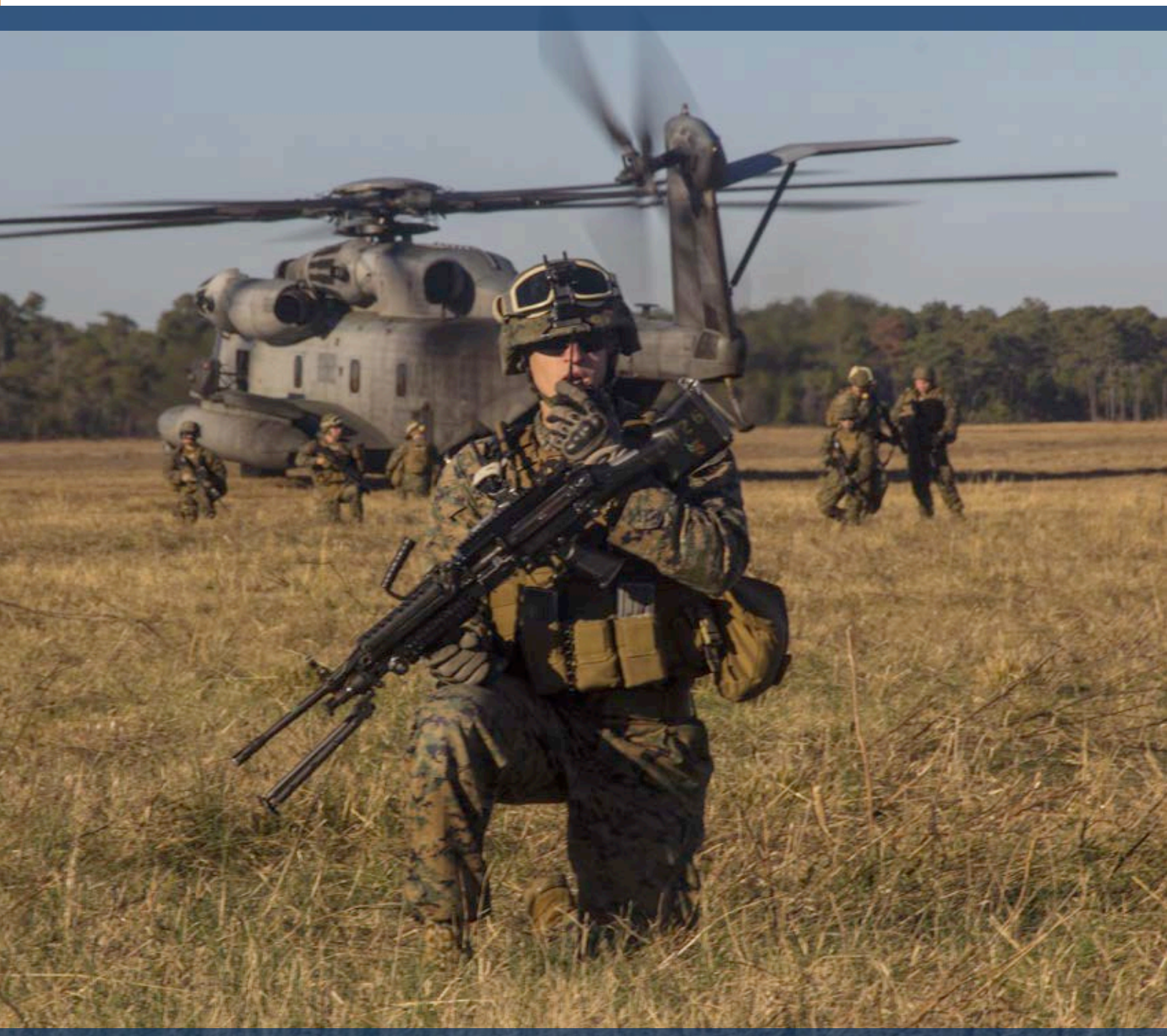
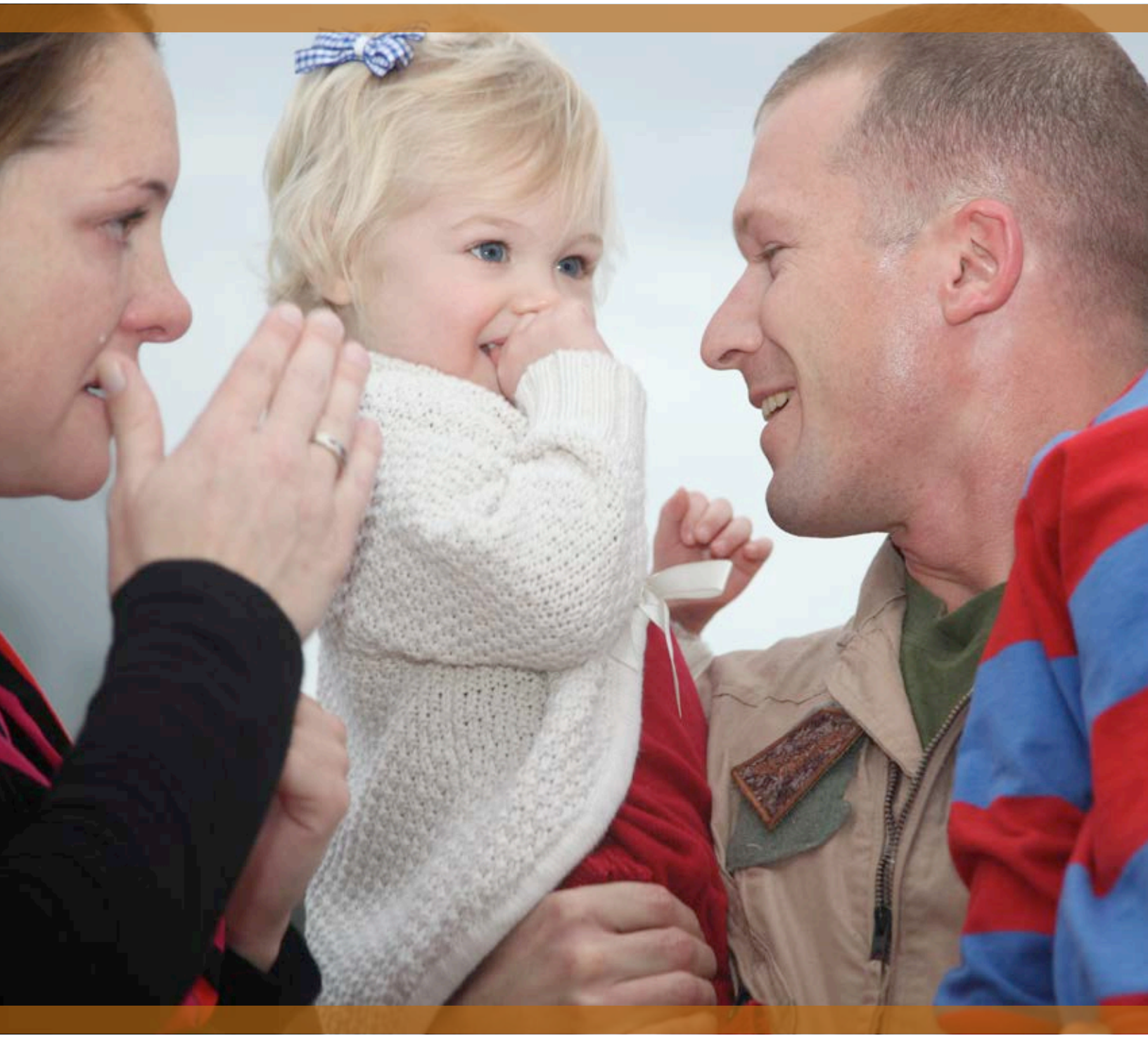
PILLAR 2:
UNIT READINESS



SECTION 1: KEEPING FAITH WITH MARINES, SAILORS, AND THEIR FAMILIES



INTRODUCTION

We expect and require extraordinary loyalty from our Marines and Sailors —loyalty to country, family, and Corps. Our Nation has been at war more than a decade, placing unprecedented burdens on Marines, Sailors, families, Wounded Warriors, and the families of the fallen. They have all made tremendous sacrifices, many in the face of danger; we owe our complete loyalty back to them all.

We will work to ensure the critical needs of our families are met during times of deployment and in garrison by providing the services, facilities and programs to develop the strength and skills needed to thrive while facing the challenges of operational tempo. If wounded, injured or ill (WII), we will seek out every available resource to restore Marines to health. We will enable the return to active duty for those seeking it. For those unable to do so, we will responsibly transition them to civilian life. We will support and protect the spouses and families of our wounded and those of our fallen Marines. There are several areas and programs central to our tenet of "keeping faith with Marines, Sailors and their families."

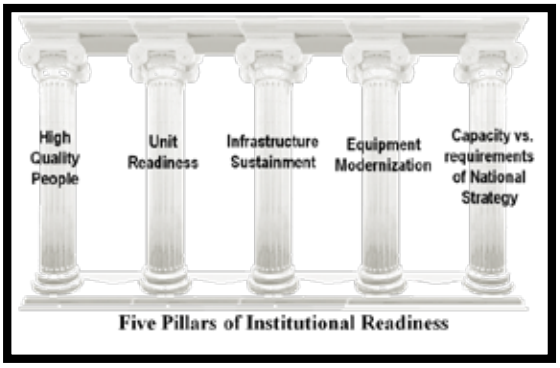
DEFENSE READINESS REPORTING SYSTEM – MARINE CORPS (DRRS-MC)

DESCRIPTION

The DRRS is the next-generation 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 DoD-wide web-based user interface. Similar to DRRS-Army 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. 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 supports the Five Pillars of Institutional Readiness construct by allowing Marine commanders to accurately and efficiently report the readiness of their units to Headquarters Marine Corps (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. DRSS-MC allows commanders to report unit readiness in terms of resources, ability to conduct METs, and overall readiness to execute a unit's core mission and its assigned missions. DRRS-MC allows users to view current and historical readiness information using graphical user interface screens to efficiently display readiness information. DRRS-MC 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.



Five Pillars of Institutional Readiness

PROGRAM STATUS

The Marine Corps went "live" with DRRS-MC on April 30, 2010 with the fielding of the Net-centric User Status Report application. This application enabled unit commanders to submit readiness reports containing both resource data and mission assessments. The DRRS-MC business intelligence tool, the Marine Readiness Management Output Tool, was fielded at the end of FY 2010 and enables Marine Expeditionary Forces, Marine Corps Forces (MARFORs), and HQMC to assess force readiness with greater clarity. The DRRS-MC business intelligence tool is undergoing a significant series of functional enhancements to further meet requirements of the user community. In November 2012, the USMC fielded an Enterprise Messaging web-service capability in DRRS-MC, allowing USMC Mission Assessments and Resource data to be consumed by the DRRS-E. This new capability enables senior DoD leadership, including Combatant Commanders, to view and consume USMC readiness data. DRRS-MC is expected to reach full operational capability in FY 2014.

MEDICAL READINESS REPORTING SYSTEM (MRRS)

DESCRIPTION

The MRRS is the Individual Medical Readiness (IMR) reporting system for the Marine Corps. MRRS effectively standardizes the reporting of IMR and deployment health. It collects, tracks, and reports individual medical/dental readiness for both the

active and reserve components, ensuring the Marine Corps meets Department of Defense and Congressional requirements. MRRS is a low-cost, high-dividend investment that has had a positive impact on the ability of Marine commanders to assess the medical readiness of their units.

OPERATIONAL IMPACT

Medical readiness reporting is the responsibility of the commander. MRRS allows Marine commanders to accurately and efficiently report the medical readiness of their units. With MRRS, IMR reporting has become institutionalized. Data is updated in real time, allowing commanders to gain immediate awareness on the deployment health status of their units, down to the individual Marine. In addition to tracking unit and individual medical readiness, the capability exists within MRRS to track Marines and Sailors who have been diagnosed with Traumatic Brain Injury (TBI) – and those who have experienced concussive events that may produce TBI – from their "point of injury" to "return to full duty." This will give commanders the ability to monitor the status of a Marine who has suffered a concussive event, in combat or at home station, and if necessary, ensure that Marine is referred to the appropriate health care provider. A similar application has been developed for Post Traumatic Stress Disorder.

PROGRAM STATUS

MRRS has been operational since 2006. The USMC continues to make minor enhancements to MRRS to meet service, Joint and the Office of the Secretary of Defense requirements for Unit Medical Readiness visibility and IMR reporting.

FAMILY SUPPORT PROGRAMS

While we recruit Marines, we retain families. The readiness of our families is directly linked to the readiness of our Corps. Because almost 50 percent of our Marines are married, investment in our families is critical to the long-term health of our Corps. For our active duty population, we have almost 90,000 spouses, more than 117,000 children, and approximately 280 dependent parents and other dependents. The Marine Corps is a young force, with 61 percent being 25 years old or younger. Almost 39 percent of our enlisted force is between the ranks of private and lance corporal (pay grades E-1 to E-3), and almost 62 percent of Marines are on their first enlistment. Our personal and family readiness planning carefully considers these demographics.

The Marine Corps is committed to providing Marines and their families with a comprehensive and effective support system. Periods of increased utilization are expected both during the existing wartime mission and as Marines return to garrison life and reunite with

families. Effective strategic communications on changing benefits will be essential to ensure complete transparency and opportunity for families to adjust their individual family plans while maintaining a consistent quality of life.

Our **Family Readiness Programs** strengthen and fortify Marines and families by providing official unit communications, readiness preparedness training, information on and referral to qualified helping professionals, and vital unit/installation/community connection. Just as our Marines are required to be in a constant state of readiness, so must our Marine families. We know that in order to develop, maintain, and sustain their personal and family readiness and resiliency, we must provide innovative programs and services that are timely and relevant. Technology enablers such as e-Marine and Marine On-line have been incorporated into the family readiness program to keep Marines and family members apprised of events. Well-trained and equipped Family Readiness Officers act as a critical program connector. They actively seek partnerships with other helping professionals and leverage family member volunteers to support the unit, personal and family readiness mission.

Our **Family Care Program** utilizes integrated capabilities that support the care and development of Marine Corps children from birth to age 18 and family members with disabilities. These programs—Child, Youth and Teen Program (CYTP), Exceptional Family Member Program (EFMP) and the School Liaison Programs — attend to both typical and unique family needs that may challenge the resiliency, health, education, and overall well-being of our Marine Corps children.

CYTP supports families in balancing the demands of meeting mission requirements and parental responsibilities by offering families quality, affordable, accessible child care and youth and teen recreation programs. Services may be located on or off the installation and respond to the full-day, part-day and hourly needs of Marine Corps families. CYTP strives to deliver standardized, consistent, predictable programs across all installations thereby reducing the stress of the military lifestyle on children, youth and teens. EFMP improves the quality of life for families that support a member with a disability. EFMP ensures that Marines are assigned to duty stations where the required support and services are available. This allows the Marine to focus on the mission, benefiting the Marine's unit and career progression. Our School Liaison Programs provide the critical link between commanders, communities, schools, and families of military school-age children to provide clarity and direction that is vital to assure all stakeholders operate cohesively in a standardized manner.

INTEGRATED BEHAVIORAL HEALTH

Marines continue to make significant contributions to the war effort around the globe. After more than a decade of sustained conflict, many are experiencing considerable stress from multiple deployment cycles, the rigors of combat, high operational tempos, and the anxieties of separation. Marines, Sailors, and their families continue to receive access to high quality, comprehensive behavioral health services. The Behavioral Health Program seeks to maximize

resources to improve access to quality behavioral health care services.

The Behavioral Health Program provides resources to address the concerns facing Marines, Sailors, and their families today including new parent support, life and relationship skills, interventions for family violence, combat and operational stress control, suicide prevention, and substance abuse prevention. In addition, the Behavioral Health Program is increasing the number of trained behavioral health personnel available to provide counseling services and treatment.

Sustaining the wellness and optimal functioning of Marines, Sailors, and their families remains the top priority of the Marine Corps. To succeed in this endeavor our Behavioral Health Program is empowering leaders through training and awareness programs that strategically target common behavioral health risk and protective factors and whose goal is earlier prevention and intervention. The recent development of Marine Total Fitness, a unifying framework that promotes a holistic view of health including mind, body, social, and spiritual elements, helps to guide the development of wellness. The efforts of the Behavioral Health Program and engaged leadership enhances unit, personal and family readiness.

SEXUAL ASSAULT PREVENTION AND RESPONSE

Sexual assault is a crime that is incompatible with Marine Corps values of honor, courage, and commitment. Not only does it undermine mission readiness and unit cohesion, sexual assault results in an irrevocable loss of faith in the institution and violates the basic principles every Marine has vowed to defend.

Tasked with determining how best to stop this "aberration" within the Corps, the Commandant's hand-selected Operational Planning Team devised the 2012 Sexual Assault Prevention and Response (SAPR) Campaign Plan to reinvigorate the existing SAPR program through the implementation of new prevention and victim care initiatives. Large-scale Marine Corps-wide training initiatives were implemented utilizing a top-down leadership model, in order that the impact of sexual assault and its overarching effects on the Corps were clearly understood by all. Commanders and their senior enlisted leaders will continue to establish an environment that is non-permissive to any misconduct, especially the crime of sexual assault. But the duty of preventing sexual assault belongs inherently to Marines of every rank.

The SAPR Program remains steadfast in its commitment to victim care. Response systems have been strengthened through advocacy training and have heightened focus on world class victim care. The Marine Corps remains focused in its commitment to ensuring all victims of sexual assault receive supportive services that preserve their dignity and safety. In addition to the successful implementation of these initiatives, SAPR recognizes that sexual assault remains an underreported crime. We will continue to reinforce our prevention and response efforts, while holding fast to the fact that one instance of sexual assault is one too many.

WOUNDED WARRIOR REGIMENT (WWR)

Through our Wounded Warrior Regiment (WWR), the Marine Corps will continue to provide non-medical care to honor the sacrifices of our Nation's wounded, ill, and injured (WII) Marines and their family members. WII Marines are highly resilient. Whether they return to full duty or resume their lives in their civilian communities, they are remarkable individuals whose hard-won experiences are highly valuable to our Nation. The Marine Corps believes that WII Marines' best days are not behind them, but are still to come. The WWR supports WII Marines and families to ensure that this belief is realized.

In caring for WII Marines and their families, the WWR has confirmed that their needs are varied and

highly dependent upon many factors, including the acuity of the Marine's wound, illness, or injury; his or her family support system; and the phase and location of recovery. WII Marines and their families are a highly unique population and must receive programs and services commensurate with their particular situation. For the Marine Corps, care for WII Marines is not a process; it is a relationship.

Headquartered at Marine Corps Base Quantico, the WWR is a military command with detachments around the globe to ensure care is provided when and where it is needed. The Marine Corps makes no distinction for the purposes of providing care. Marines wounded in combat, Marines injured in the line of duty, and Marines who fall ill, may all benefit from the WWR's comprehensive non-medical care. This non-medical care is provided in many ways, to include preparing and executing recovery plans, disability evaluation system advocacy, liaison to the medical community (including behavioral health), resource and information referral, navigating pay and entitlements, and community reintegration.

Marines do not need to be assigned to the WWR to receive care and support. Under the Marine Corps care construct, only the most medically acute cases are joined to a regimental element. When joined, these WII Marines and their families benefit from high-touch recovery oversight via multi-disciplinary teams consisting of medical and non-medical experts who regularly confer to ensure a holistic recovery. WII Marines whose medical conditions do not trigger assignment to a regimental element are also supported by the WWR's non-medical recovery care experts and programs and services. The WWR also supports Marine Commanders by providing them with the information and resources they need to care for their WII Marines.

The Marine Corps has pledged to "keep faith" with those who have served. The WWR is a fundamental component of this pledge. Whether we are a Nation at war or in times of peace, the WWR will continue to successfully meet the advocacy, non-medical support, and care coordination needs of WII Marines and their families.

SEMPER FIT AND RECREATION / EXCHANGE SERVICES

The Marine Corps Total Fitness Campaign is supported through partnership with the Semper Fit and Exchange Services programs. These programs are aligned to support the social and physical cords of Marine Total Fitness, to sustain a high quality of life and community health, and to enhance the Marine Corps mission, focus, and readiness.

Highlights of significant 2012 initiatives include the High Intensity Tactical Training (HITT) program, a comprehensive strength and conditioning program specific to optimizing physical performance and combat readiness for all active duty and reserve Marines. HITT takes functional fitness and strength and conditioning to the next level for the Corps. Aquatic Cadence and Reconditioning is another program unveiled in 2012. Currently operating at 15 pools around the Marine Corps, this program is focused on pool running and workouts lasting 20 to 60 minutes. The workouts are low-impact and easier on joints than running on a road. The program has been getting positive reviews from Marines who find it to be even more challenging than the more traditional workout.

The "For the Leathernecks" Comedy and Entertainment tour is a unique event which brings comedians and musicians on-installation to perform free of

charge and has been popular with Marines and Sailors. These shows build esprit de corps and unit cohesion to support the Marine Corps Total Fitness strategies. In 2012, the "For the Leathernecks" tour reached over 10,000 single Marines, many of which recently returned from a deployment or training exercise. Approximately 24 more shows across the Marine Corps are scheduled for 2013.

Operation Adrenaline Rush (OAR), currently offered at Marine Corps Air Station (MCAS) Yuma and Camp Lejeune, assists Marines in reintegration after deployment by empowering small unit leaders, maintaining combat readiness, and reinforcing unit cohesion through high adventure, outdoor activities like white water rafting or rock climbing. There are plans to expand OAR to several other installations in 2013.

Special congratulations go to two other Marine Corps special activities — the All-Marine Boxing and Rugby teams — that won their respective Armed Forces Championships in 2012.

Marine Corps Community Services Business Operations provide lifestyle relevant products and services below market price, which Marines and families need and desire to support household and financial health both in garrison and while deployed. In 2012, the Marine Corps Exchange (MCX) celebrated its 115th anniversary. It has come a long way since 1897 and remains steadfast in its support of Marines, Sailors, and families. The MCX continues to support the Commandant's priority of "keeping faith with Marines and families" by providing a quality, relevant, and accessible benefit. In 2012, we made important infrastructure improvements; several new and renovated branded Exchanges opened, including at Twentynine Palms, Henderson Hall, Camp Lejeune, and Camp Pendleton. The MCX remains conscious of the changing needs of Marines and families while seeking efficiencies and implementing best business practices. With MCX, Marines and their families can rely upon a high quality product, at a fair, competitive price, and know that the proceeds are invested in their community, creating a stronger Marine Corps and enhancing overall community health.

PERSONAL AND PROFESSIONAL DEVELOPMENT PROGRAM

As our Nation's force in readiness, Marines stand combat-ready. The Commandant is committed to ensuring they also stand transition-ready through a Personal and Professional Development Program that will be integrated into Marines' careers. The Marine Corps is transforming its transition assistance so that it engages Marines throughout their military careers. Marines will develop long-term education and career goals and will be equipped with the skills needed to successfully reintegrate into civilian life. Our first phase revolutionized our Transition Readiness Seminar, which now contains both core and pathway content that tailors a Marine's transition to his or her goals while meeting specific transition readiness standards. Our next phase will enhance outreach to those who require localized support through our Marine for Life Program and its Marine for Life representatives that will help Marines develop and maintain local networks of Marine-friendly individuals, employers, and organizations. Our Personal and Professional Development Program will also focus on spouse employment and effective financial management strategies.

This approach positions the Marine Corps to better support Marines and families during their military service and while they prepare for their eventual reintegration into civilian life. Transition will no longer be a culminating event to a Marine's service, rather it will become a vital part of a Marine's continuous personal and professional development from recruit to veteran. Whether they choose to be reservists, students, business owners, or employees, our Marines and their families will return as quality citizens with a plan for success.

SECTION 2: 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, and 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 enhance shared understanding of the battlespace and enable rapid, coordinated action — all without overburdening the Individual Marine or compromising our expeditionary agility.

Today's Marines are operating superbly in every clime and place. The Marine Corps leadership has an obligation to their Marines, their families, and the Nation to be prepared for tomorrow with an eye to lightening the current fighting load. 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.

M27 INFANTRY AUTOMATIC RIFLE (IAR)

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:
Heckler & Koch, Ashburn, VA

DESCRIPTION

The IAR significantly enhances the automatic rifleman's maneuverability and displacement speed, while also providing the ability to suppress or destroy targets of most immediate concern to the fire team.

OPERATIONAL IMPACT

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

PROGRAM STATUS

Following the Milestone C decision in 2009, the IAR underwent a Limited User Evaluation (LUE) with participation by three *Operation Enduring Freedom* active-duty infantry battalions, a reserve infantry battalion, and an active-duty light armored reconnaissance battalion. The LUE assessment collection included a post-workup assessments and a 100-day deployment assessment. Due to positive feedback from the deployed units, the Commandant of the Marine Corps terminated the Limited User Evaluation in favor of a Full-Rate Production Decision in third quarter of FY 2011. A Fielding Decision was achieved and fielding began in second quarter FY 2012. Initial Operational Capability was achieved third quarter FY 2012 and Full Operational Capability is scheduled for second quarter FY 2013. The full AAO has been purchased.

MARINE EXPEDITIONARY RIFLE SQUAD (MERS)

DESCRIPTION

The MERS is responsible for the Squad as a System. The focus is on the Marine as a human and everything worn, carried and consumed by the squad as a capability provider. 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 located on Camp Barrett at The Basic School. The facility provides a venue to engineer, evaluate, and refine 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 Operational Environment Simulator focused on equipment evaluation in order to accomplish equipment modernization and integration initiatives. Human Systems

Integration and ergonomics are applied to the physical integration of the infantry squad's equipment.

OPERATIONAL IMPACT

Ergonomic solutions coupled with weight, stiffness and bulk reductions enhance the mobility of the squad while providing simple, reliable, and trainable integrated equipment solutions.

PROGRAM STATUS

Integration efforts during 2013 include:

- Metric for mobility of Marines utilizing the Marine Corps Load Effects Assessment Program (MC-LEAP)
- Integration of the Joint Battle Command – Platform (JBC-P) into the Marine rifle squad
- Improvements in the weight distribution and load carriage methodology within the squad using metrics for mobility
- Infantry weapon as a system ergonomic enhancements
- Thermal strain and physiological studies in the operational environment
- 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, Amphibious Combat Vehicle, and Marine Personnel Carrier
- Integration of the various unique items carried in the billet positions within the squad

FAMILY OF BALLISTIC PROTECTION SYSTEMS (FBPS)

DESCRIPTION

The Marine Corps (FBPS) is comprised of critical individual armor systems that save lives, reduce the severity of combat injuries, and increase combat effectiveness. It also provides Marines with the ability to adapt their armor load to address the tactical situation. FBPS includes the latest in personal protective equipment and load-bearing equipment, including the following: Improved Modular Tactical Vest (IMTV), Plate Carrier (PC); Full Spectrum Battle Equipment (FSBE); Body Armor System Combat Vehicle Crewman; Light Weight Helmet (LWH); Protective Undergarment (PUG); Protective Over Garment (POG); Enhanced Combat Helmet (ECH); and Improved Ballistic Eyewear (IBE).

In February 2007, the Marine Corps transitioned to the Modular Tactical Vest (MTV) for troops deployed in Overseas Contingency Operations. The MTV provided improved load carriage, fighting load integration, and emergency release capability over the legacy Outer Tactical Vest. In response to MTV design deficiencies identified during field use, the program office developed the IMTV. The IMTV improved armor and fighting load integration, resulting in increased mobility and lethality while reducing system complexity and overall weight in comparison with the MTV. Initial fielding was initiated during the first quarter of FY 2012.

The Scalable Plate Carrier (SPC) was issued as an additional ballistic vest for Marines operating in jungle environments and the mountainous regions of Afghanistan, beginning in 2008. The SPC provides an option for commanders to address certain mission and threat requirements. Compared to the MTV, the SPC allows for greater individual maneuverability, agility, and mobility with reduced thermal stress in jungle and hot mountainous environments. The SPC is intended to address a predominantly direct fire threat and offers the same level of ballistic performance as the MTV. The system reduces overall weight by minimizing the soft armor required beyond that needed to address the direct-fire threat. The SPC is being replaced with the Plate Carrier (PC).

The USMC PC is now the Marine Corps armor Program of Record. The PC is a government-developed design that improves shoulder comfort, improves load carriage, incorporates an emergency release capability when compared to the SPC, and shares 95 percent commonality with the IMTV.

The FSBE provides a tailorable suite of torso and headborne ballistic protection, short-duration underwater breathing capability, flotation, and limited load carriage to meet the specific mission profiles required by the Marine Corps Special Mission communities.

The Tier 1 PUG was developed to protect the skin from the effects of sand and small debris used in Improvised Explosive Devices. There are two phases to this effort. The first phase, which began initial fielding during the first quarter of FY 2012, provides an immediate solution in support of Marines in Afghanistan. The second phase calls for exploring and the development of new protection systems for the lower extremities. To facilitate this effort, a Pelvic Protection working group has been assembled under the Natick Soldier Research Development and Engineering Center. The working group coordinates Army and Marine Corps efforts that explore more effective and less restrictive solutions to reduce the lower extremity casualties suffered by Marines and Soldiers.

The Tier 2 POG was developed to provide increased coverage to the pelvic region against high velocity fragmentation. There are two phases to this effort. The first phase provided an immediate solution in support of Marines in Afghanistan. Initial fielding of the POG was initiated during the first quarter of FY 2012. The second phase calls for the development of new protection systems for the lower extremities that integrate with the final Tier 1 PUG design. Marine Corps Systems Command is working with the Office of Naval Research and the Naval Research Laboratory as well as the Army to develop more effective and less restrictive solutions to reduce the lower extremity casualties being suffered by Marines and Soldiers.

In addition to body armor, Product Manager, Infantry Combat Equipment (PdM ICE) also procures the current LWH and Modular Integrated Communications Helmet (MICH). The LWH and MICH are the helmets that have been used by Marines during overseas contingencies since 2004.

Starting in 2009, Enhanced Combat Helmet (ECH) has been in development. Developmental testing has shown the ECH has resistance to select small arms penetration and superior fragmentation protection at the same weight of presently fielded helmets. The ECH is a protective helmet consisting of a ballistic protective shell, pad suspension system, four-point retention system, reversible helmet cover, night vision goggle bracket, and attachment hardware. The ECH shell has the shape of the Army's Advanced Combat Helmet for improved field of view, sound localization, and equipment integration.

The Improved Ballistic Eyewear (IBE) has replaced the Military Eyewear Protection System (MEPS) Eye Safety Systems (ESS) ICE spectacle. The IBE is designed to protect Marines against sun, wind, dust, and ballistic hazards that are common on the battlefield. The IBE is fielded as a system, one spectacle and one goggle.

OPERATIONAL IMPACT

The FBPS allows the incremental enhancement of individual components within the program as technological improvements become available, while ensuring integration with fielding and developing Personal Protective Equipment (PPE). Working closely with the U.S. Army, with whom the USMC shares ballistic performance requirements and testing standards, the Marine Corps is fielding tested PPE tailored to the dynamic operational environment.

PROGRAM STATUS

The FBPS is equipping the operating forces with technologically advanced and highly effective PPE. As technology advances, there is a continuous upgrade and replacement of personal protective systems based on battlefield comments and threat information. The Marine Corps is already developing the concept and armor behind the Modular Scalable Protection System which will integrate armor requirements into one system that will include iterative product improvement and additions.

Procurement Profile:	FY 13	FY 14
Quantity:		
ECH	77,000	0
PC	55,882	41,947
PUG	183,600	0
NEXTGENSAPI PLATE	30,000	0

Developer/Manufacturer:
ECH: Ceradyne, Inc., Costa Mesa, California
FSBE: The Resource Center, Jamestown, New York
IBE: Eye Safety Systems, Inc. (ESS), Foothill Ranch, California
IMTV: Carter Enterprises, Brooklyn, NY and KDH, Eden, North Carolina
PC: Carter Enterprises, Brooklyn, NY; KDH, Eden, NC; Ibiley Manufacturing, Miami, Florida
POG: Hawk Protection, Inc., Pembroke Pines, Florida
PUG: Armorworks, Chandler, Arizona
LWH: BAE Systems, Jessup, Pennsylvania

CLOTHING AND FLAME RESISTANT ORGANIZATIONAL GEAR (FROG)

DESCRIPTION

In February 2007, the Marine Corps began fielding FROG – including gloves, balaclava, long-sleeved undershirt, combat shirt, and combat trousers — to all deployed and deploying Marines. As part of this effort, the Marine Corps recently added the Inclement Weather Combat Shirt (IWCS) to the FROG capability set. This pullover shirt is designed to be worn with body armor and provide protection against the effects of adverse weather conditions such as rain, wind, and snow while maintaining the current level of flame-resistant protection. A product-improvement initiative is underway in response to durability deficiencies experienced in Afghanistan and to improve integration through design changes. In addition, the requirement for Woodland Marine Pattern FROG combat shirt, trouser and IWCS are required to provide improved camouflage and concealment in areas with green vegetation.

OPERATIONAL IMPACT

This lifesaving ensemble of flame-resistant clothing items mitigates flash-flame exposure injuries caused by Improvised Explosive Devices. The Marine Corps continues development of FROG to reduce weight, increase comfort, improve durability, and increase flame-resistant properties.

PROGRAM STATUS

The FROG ensemble is post Milestone C and is being fielded.

Procurement Profile:	FY 13	FY 14
Quantity:		
Woodland Sets	35,000	15,000

Developer/Manufacturer:

FRGloves: Camelback, Petaluma, CA; Botach Tactical, Los Angeles, CA; Promotion Plus Inc, North Royalton, OH

Combat shirt and Trouser: Propper ECommerce Inc, Weldon Spring, MO; Provengo LLC, Oceanside, NY

Inclement Weather Combat Shirt: Short Bark Industries, Vonore, TN

Mid-weight Balaclava: Southeastern Rehabilitation, Corbin, KY

Lightweight Balaclava: Dawn Enterprises, Inc, Blackfoot, ID

LSt-shirts: Peckham Vocational Industries, Lansing, MI

FAMILY OF MOUNTAIN COLD WEATHER CLOTHING AND EQUIPMENT (FMCWCE)

DESCRIPTION

The purpose of the Mountain Cold Weather Clothing and Equipment Program (MCWCP) is to increase the survivability, mobility, and lethality of Marines in mountainous and cold-weather environments, at altitudes in excess of 15,000 feet, and at temperatures that fall as low as -25 degrees Fahrenheit. Clothing and equipment addressed by the FMCWCE include skis, snowshoes, cold-weather hydration systems, sleeping systems, climbing equipment, mobility enhancement equipment, cold-weather clothing systems, and cold-weather footwear.

In September 2008, the Marine Corps identified a need to provide a smaller and lighter sleep system to replace the Modular Sleep System (MSS). The Three-Season Sleep System (3S) leverages technological advances in textiles and insulation to increase environmental protection while reducing weight and volume compared to 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 MSS patrol bag. The 3S is designed for 20 degrees with lightweight insulating layers and as low as 10 degrees when wearing recommended MCWCP insulating clothing layers.. The 3S increases mobility and survivability by permitting Marines to operate across a greater temperature range than could be achieved with the previous MSS.

The 3S is being fielded. In FY 2012, the Marine Corps will address temperatures between 10 and -20 degrees with the Extreme Cold Weather Bag (ExCWB).

The FMCWCE also encompasses the Mountain Cold Weather Clothing Program (MCWCP), which consists of the following:

- 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
- Flame-Resistant Silkweight Underwear
- Flame-Resistant Midweight Underwear.

The MCWCP is in the operations and support phase.

OPERATIONAL IMPACT

The FMCWCE allows Marines to operate in every climate and place by providing the clothing and equipment required to survive in harsh mountain cold weather environments. The program drives innovation and improvement in the commercial market, which leads to lighter weight and higher performing clothing and equipment for the warfighter.

PROGRAM STATUS

Many of the programs within the FMCWCE are post-Milestone C and are either being fielded or sustained. The ExCWB will be a new effort in FY 2012.

Procurement Profile:	FY 13	FY 14
Quantity:		
ExCWB	20,332	105,000
Folding Mat	22,222	37,072
All Purpose Liner	26,000	58,798
Ski System	0	1,203

Developer/Manufacturer:
ExCWB: NISH: Readyone Industries, El Paso, TX

Ski System: NISH: Pioneer Adult Rehab Center (PARC), Clearfield, UT

Folding Mat: NISH: Pioneer Vocational/ Industrial Services Inc., Danville, KY

All Purpose Liner: NIB: Industries for the Blind, Winston Salem, NC

SQUAD THERMAL SIGHT (STS)

DESCRIPTION

The STS will be a lightweight thermal imager that can be used in the handheld mode or in the weapon-mounted, clip-on mode that is compatible with the AN/PVQ-31 Rifle Combat Optic, the magnified day optic used on the M16A4 service rifle, and M4 carbine. The STS will have an integrated Class 3B infrared (IR) laser pointer with two modes of operation: training (eye-safe) and tactical (non-eye safe). The IR pointer will assist in target designation when used with image-intensification night-vision devices.

OPERATIONAL IMPACT

The STS will better enable Marines to detect and recognize potential targets, danger areas, and items of interest in low light as well as all other lighting conditions. The integrated laser pointer will allow Marines to designate potential threats to other team members equipped with image-intensified night-vision devices, thus improving situational awareness and facilitating control of organic weapon fire. As recently as early 2012, Marines have had to carry two separate devices to satisfy the requirement for thermal imaging in weapon-mounted and hand-held configurations. The fielding of one device that is optimized to function in both modes leads to an overall weight-savings for the individual Marine and also reduces the logistical burden and support.

PROGRAM STATUS

The STS program will attain Initial Operational Capability during FY 2014 and Full Operational Capability during FY 2015.

Procurement Profile:	FY 13	FY 14
Quantity:	25	863

Developer/Manufacturer:
TBD

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). First and Second CEBs will be assigned three sets each.

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

The Increment I Capability Production Document (CPD) 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. The Increment II CPD was approved in July 2011. Increment II consists of rebuilding CATEGORY I, II, and III Mine Resistant Ambush Protected (MRAP) vehicles, adding an interrogation arm and Vehicle Optic Senor System (VOSS) onto CAT II Mine Resistent Ambush Protected (MRAPS), and procurement of the ENFIRE automated route reconnaissance kits. Increment III requirements documents are planned for signature in 2013. Increment III will add emerging R2C capabilities to the Family of Systems.

Procurement Profile:	FY 13	FY 14
Quantity:		
Blades	46	0
Robots	46	0
ENFIRE	23	0

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.

SECTION 3: INVESTING IN THE EDUCATION AND TRAINING OF OUR MARINES

INTRODUCTION

We will maintain professional military education and training programs that prepare Marines for the stress of combat operations and equip them with the skills to meet the challenges of life as a Marine. Founded on our core values, our education and training curricula strengthen individual resilience and support a wide range of operational capabilities. We are leveraging competencies in entry-level and skills-progression training, and re-emphasizing core competencies in combined arms and amphibious operations. Future training will also center on the MAGTF Training Program, which will develop the essential unit capabilities to conduct integrated operations. We are transforming the Marine Corps University into a world-class institution and are widening opportunities in career-level schools for our company-grade officers. We are likewise increasing enlisted resident courses and are adding more distance-education learning opportunities and requirements, especially at the junior enlisted and non-commissioned officer level.

TRAINING AND EDUCATION COMMAND (TECOM)

Located in Quantico, VA, TECOM is a key component of Marine Corps Combat Development Command (MCCDC). TECOM is tasked with the development, coordination, resourcing, execution, and evaluation of training and education concepts, policies, plans, and programs to ensure Marines are prepared to meet the challenges of present and future operational environments. The major subordinate commands within TECOM that carry out this mission are described below.

MARINE CORPS RECRUIT DEPOTS (MCRDs) PARRIS ISLAND, SOUTH CAROLINA AND SAN DIEGO, CALIFORNIA

The Marine Corps Recruit Depots (MCRDs) are responsible for basic training also known as "Boot Camp." This process, in which recruits are cut off from the civilian world and inducted into Marine Corps lifestyle, is conducted over a 13 week period. Upon completion, recruits earn the title "Marine" and then move on to additional combat or other military occupational specialty training.

TRAINING COMMAND (TRNGCMD)

Located in Quantico, VA, TRNGCMD is the Marine Corps proponent for military occupational specialty individual-skill training. TRNGCMD analyzes, designs, develops, resources, implements, and evaluates standards-based individual training in order to provide combat capable Marines to the operating forces. TRNGCMD accomplishes its mission by exercising command over each of the Marine Corps formal schools, Marine Corps detachments at other Services' bases, and the Marine Aviation Training Support Groups located across the United States.

EDUCATION COMMAND (EDCOM)

Located in Quantico, VA, home of the Marine Corps University, EDCOM is responsible for developing, delivering, and evaluating the professional military education programs through resident and distance education programs to prepare leaders to meet the challenges of the national security environment. EDCOM also preserves, promotes, and displays the history and heritage of the Marine Corps through the History and Museum Division and the National Museum of the Marine Corps.

MAGTF TRAINING COMMAND (MAGTF-TC)

Located in Twentynine Palms, CA, MAGTF-TC is responsible for designing, executing, and assessing Marine Air Ground Tasks Forces (MAGTFs) and Major Subordinate Element level training exercises. MAGTF-TC conducts relevant live-fire combined arms training, urban operations, and joint and coalition level integration training that promotes operational forces readiness.

COURSES AND FACILITIES

A broadly capable middleweight force will meet future requirements through the integration of newly acquired and traditional operational competencies. To remain America's Expeditionary Force in Readiness, the Marine Corps requires balanced, high-quality training and education at all levels. As history has repeatedly shown, wars are won by the better-trained force, not necessarily the larger one. In the midst of ongoing combat operations, the Marine Corps is realigning education and training efforts to enable Marines and Sailors to succeed in conducting distributed operations in increasingly complex environments against any threat. To meet these challenges, the Marine Corps Training and Education Command (TECOM) will provide the training courses and facilities that are responsive and relevant for preparing individual Marines and Marine Corps units via targeted, progressive training and continuous assessment.

Our current training is focused on preparing Marine units for combat, counterinsurgency and stability operations in support of *Operation Enduring Freedom* (OEF) . The past 10 years of combat have demonstrated that there is a positive correlation between quality training and education and individual/unit readiness; both directly translate to operational success. Therefore, as we draw-down from Afghanistan, our training and education will rebalance to support the execution of a wider range of operational capabilities. We will achieve this balance by leveraging competencies in entry-level and skills progression training and by re-emphasizing core competencies in combined arms and amphibious operations, irregular warfare, humanitarian assistance, and inter-agency coordination. In addition, we are making the investments necessary to implement the recommendations of the 2006 Officer Professional Military Education Study (The Wilhelm Report) to transform the Marine Corps University (MCU) into a "world class institution." These efforts will ensure that Marines are prepared to meet the challenges of post-OEF operational environments.

Our training and education programs will culminate with the MAGTF Training Program. Through a standardized training approach, the MAGTF Training Program will develop the essential unit capabilities necessary to conduct integrated MAGTF operations. Building on lessons learned over the past 10 years, this approach includes focused battle staff training and a service assessment exercise modeled on the current exercise, Enhanced Mojave Viper. Additionally, we will continue conducting large scale exercises that integrate training and assessment of the MAGTF as a whole. The MAGTF Training Program facilitates the Marine Corps ability to provide multi-capable MAGTFs prepared for operations in complex, joint and multi-national environments against hybrid threats.

In order to fully realize these training and education enhancements, we will continue investing in the resources, technologies and innovations that enable them. These investments include modernizing our training ranges, training devices, and infrastructure to ensure quality resources are available to support the training of Marines, individual to MAGTF. We will also leverage advanced technologies and simulation systems to create realistic, fully immersive training environments.

TRAINING

MAGTF TRAINING

PRE-DEPLOYMENT TRAINING PROGRAM (PTP)

MARINE AIR GROUND TASK FORCE (MAGTF) TRAINING

The Marine Corps has developed an extensive PTP, based on the Pre-Deployment Training Continuum, to prepare Marines for today's operational environments. The PTP establishes a coherent progression of skill level training conducted by commanders and evaluated at PTP Mission Rehearsal Exercises (MRXs). Training is conducted in four nested "blocks" in ascending com-

petency levels. Marine Expeditionary Force commanders determine what level of competency is required for each deploying unit based on mission-essential task analysis. MEF commanders 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 following training blocks comprise the PTP Continuum.

BLOCK 1

Block 1A and 1B training consists of Sustained Core Skills Training, Core Plus Skills Training, and Marine Corps Common Skills 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 the qualifications and 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 (METs) 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 (MRE). 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 Essential Task Lists. Battalion and higher deploying units will typically undergo a Training and Education Command (TECOM)-supported MRX. Deploying units that do not participate in an MRX complete an Alternate Mission Rehearsal Exercise that is supported by the parent MEF. The MRX provides information for the MEF Commanding General's unit certification process.

ENHANCED MOJAVE VIPER

Conducted onboard the Marine Corps Air-Ground Combat Center (MCAGCC) in Twentynine Palms, California, 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 counterinsurgency. Under various conditions, including desert, limited

visibility, urban, rural, joint, and interagency missions, units are provided a live-fire, combined-arms training venue that closely resembles the conditions in which they will operate once deployed.

MOUNTAIN EXERCISE

Mountain Exercise is a 28-day, Block 3 Marine Air Ground Task Force (MAGTF) exercise conducted at the Marine Corps Mountain Warfare Training Center (MCMWTC) at Bridgeport, California. This exercise focuses on military mountaineering technical skills, and tactical operations across the warfighting functions, at medium to high altitudes in complex and compartmentalized terrain and in all weather conditions. The exercise is also conducted on the Lucky Boy Pass unimproved road network and the Hawthorne Army Depot (HWAD), Hawthorne, Nevada; Ryan Canyon Road's unimproved road network, and Naval Air Station Fallon, Nevada.

Mountain Exercise includes the following five phases:

- Phase I, **Preparation and Deployment**, involves selected individuals attending the MCMWTC formal programs of instruction, which are focused at conducting operations in mountainous, medium to high altitude, and in a cold-weather environment. Phase I also includes the arrival of the units' advanced and main body, pre-environment training, the staff participating in the Mountain Operations Staff Planning Course, and a communication exercise.
- Phase II, **Shaping**, is focused on Basic Mobility, including military mountaineering mobility, survival, and technical skills and a company-platoon exercise.
- Phase III, **Decisive Action**, is focused on conducting offensive, defensive, joint, and coalition operations.
- Phase IV, **Security and Stability Operations**, is focused on mounted/dismounted counter-improvised explosive device training patrolling operations, military operations on urban terrain (MOUT), cultural engagements, and limited combined arms company live fire.
- Phase V, **Redeployment**, is focused on the unit retrograding to its home station.

COMMAND AND CONTROL TRAINING AND EDUCATION CENTER OF EXCELLENCE (C2TECOE)

DESCRIPTION

The Command and Control Training and Education Center of Excellence (C2 TECOE) serves as the central Marine Corps agency for command and control training and education issues through all levels of Marine Air Ground Task Force (MAGTF) commanders and their staffs. In conjunction with appropriate Training and Education Command (TECOM) staff sections, it provides integrated and timely coordinated solutions for validated C2 training and education requirements among TECOM, the operating forces, the Advocates, Headquarters Marine Corps, Marine Corps Systems Command (MCSC), the Marine Corps Warfighting Lab (MCWL), and selected joint, service, and coalition agencies. Additionally, it identifies, tracks, and investigates the potential impacts of future MAGTF warfighting requirements or prospective changes within the C2 training and education continuum.

OPERATIONAL IMPACT

The C2 TECOE provides Active and Reserve Component commanders, their staffs, and individual Marines timely and relevant home-station and mobile training team training in the art and science of command and control to enable them to act more decisively and effectively than the enemy. C2 TECOE works in concert with the Marine Corps Tactics and Operations Group (MCTOG), the Marine Corps Logistics Operations Group (MCLOG), Marine Aviation Warfare Training Squadron (MAWTS)-1, and the MAGTF Staff Training Program (MSTP). The Center advances the mastery of command and control in the operating

forces through individual C2 operator and watch officer/watch chief and initial collective Battle Staff Training offered through its five, regionally situated subordinate MAGTF Integrated Systems Training Centers (MISTCs). These training centers are located at Camp Lejeune, North Carolina; Camp Pendleton, California; Twentynine Palms, California; Kaneohe Bay, Hawaii; and Okinawa, Japan, and are integral components of the MAGTF Training Program's C2 training continuum.

The MISTCs are under the operational and administrative control of the C2 TECOE and directly support the MEFs and the formal schools through a building block approach that focuses on C2 training tailored to unit size and type that culminates in increasingly complex series of battle drills that exercise unit standard operating procedures; introduce the latest tactics, techniques, procedures (TTPs); and incorporate C2 best practices.

The C2 TECOE is the lead proponent for the C2 Training and Readiness Manual. They work closely with the TECOM Ground Training Division and the Deputy Commandant for Plans, Policies and Operations to establish C2 training standards, regulations and practices regarding the training of Marines for combat. This supports unit commanders, who will continue to develop their own training plans to sustain proficiency and assess their units' progress toward attaining combat readiness. The C2 TECOE will continue to develop and maintain programs of instruction ensuring skill-training requirements support the building block approach in a formal school setting at each MISTC.

The C2 TECOE preserves and promotes C2 training for Operating Force Marines by coordinating with the Deputy Commandant for Combat Development, Deputy Commandant Advocates in HQMC, and liaising with the Marine Corps System Command Product Group system acquisitions processes. This includes participating in several ongoing manpower personnel and training plan IPTs to ensure that appropriate C2 sustainment training is incorporated throughout the lifecycle of a program. Additionally, the C2 TECOE is the lead doctrinal proponent for the Marine Corps Warfighting Publication (MCWP) 3-40.2 Information Management due to be published in mid-2012.

PROGRAM STATUS

The C2 TECOE currently offers more than 20 programs of instruction through its MISTCs that support C2 operator, systems administrator, advanced systems courses, watch officer/watch chief courses and collective Battle Staff Training, with six more POIs under development. Additionally, it has a Commanders C2 Systems Overview course to acquaint operating force commanders with the tools available to them in today's digital Combat Operations Center. The C2 TECOE and its MISTCs effectively support the C2 training continuum from the individual Marine to the initial collective level that feeds more advanced collective training contained within the forthcoming Service-level Battle Staff Training Program, Integrated Training Exercise and Large Scale Exercise, all components of the MAGTF Training Program.

MARINE CORPS TACTICS AND OPERATIONS GROUP (MCTOG)

The Marine Corps Tactics and Operations Group was established in February 2008 under the cognizance of Training and Education Command (TECOM) to implement the Operations and Tactics Training Program (OTTP). Located onboard Marine Corps Air Ground Combat Center, Twentynine Palms, MCTOG is a subordinate organization to Marine Air Ground Task Force (MAGTF) Training Command.

The mission of MCTOG is to provide standardized, advanced training and certification to Ground Combat Element (GCE) Operations Officers, Operations Chiefs, and other selected GCE training specialists in operations, combined-arms planning and

integration. MCTOG also supports unit readiness planning at the company, battalion, and regiment levels to support GCE training and readiness events. This is accomplished through the Tactical MAGTF Integration Course (TMIC). In addition, MCTOG provides advanced collective training to company through regiment battle staffs by executing the Battle Staff Training Program (BSTP). Lastly, MCTOG serves as the proponent lead to develop specified GCE publications, ensures GCE doctrine is nested and consistent both horizontally and vertically within the MAGTF construct, and ensures GCE doctrine and individual and collective training and readiness events are mutually supporting to enhance the combat readiness of GCE units.

OPERATIONS AND TACTICS TRAINING PROGRAM

The OTTP increases combat effectiveness by developing a professional training culture, institutionalizing standardization, and accelerating innovation at all levels within the GCE. The three pillars of the OTTP are the TMIC, the BSTP, and the synchronization of GCE Doctrine and training and readiness events. The desired end state of the OTTP encompasses the following objectives:

- Ensure full interoperability of GCE units through standardization of tactics, techniques, and procedures in publications and in practice in the operating forces
- Inculcate GCE companies, battalions, and regiments with a higher level of training capability and rigor across the warfighting functions
- Codify and provide the training requirements for key GCE staff members to build expertise in the training, preparation, and employment of GCE units on the complex battlefields of the future
- Implement mechanisms to ensure GCE doctrine, standards, training, and requirements maintain pace with the changing threat environment and emerging operational concepts
- Enhance GCE unit preparation/performance in combat operations

TACTICAL MAGTF INTEGRATION COURSE AND GROUND OPERATIONS CHIEF COURSE (GOCC)

The blended TMIC and GOCC are the method used to train and certify Operations and Tactics Instructors (OTIs) for the GCE. The GCE Operations Officer and Operations Chief must be certified as an OTI prior to being assigned to their designated billet. The OTIs are the unit proponents of standardization and, as such, assist the commander in the preparation of the unit for combat, tactical planning, and command and control of operations. The OTIs assist their commanders with the identification of unit-specific training requirements and deficiencies as a result of evolving operational and threat environments. OTIs support the GCE by being:

- Master training designers able to implement and manage the unit readiness program
- Skilled in the art and science of planning and executing operations in complex environments
- Skilled in the art and science of command and control across the range of military operations
- Proponents of standardization to enable integration and interoperability with external organizations and enablers
- Advocates of best practices, lessons learned, resources, and emerging concepts.

INTELLIGENCE TACTICS INSTRUCTOR COURSE

Intelligence Officers and Chiefs are a secondary training audience during the execution of TMIC. A gap analysis determined that intelligence officers and chiefs assigned to GCE units lacked certain capabilities and understanding of GCE operations. The Intelligence Department of HQMC, in concert with TECOM and MCTOG, developed a six-week parallel-tracked GCE Intelligence Tactics Instructor (ITI) Course that

provides specific intelligence training and then links the student with TMIC to solidify the intelligence and operations integration.

BATTLE STAFF TRAINING PROGRAM

The Battle Staff Training Program (BSTP) is the method by which MCTOG assists commanders and OTIs in training units in advanced, collective Battle Staff command and control and planning skills. The BSTP prepares units to integrate Service, joint, and interagency assets in support of their anticipated missions during deployment. In addition, the BSTP uses tailored unit training packages, exercise support, and unit defined Mobile Training Team support packages to train unit battle staffs either at the MCTOG Battle Lab, or in support of Home Station Training. Furthermore, MCTOG is focused on the regiment, battalion, or company commander and staff in the information management, problem solving and resolution processes encountered in the current and future operating environments.

SYNCHRONIZATION OF GCE DOCTRINE AND TRAINING AND READINESS

The MCTOG is the critical link between the GCE Advocate (the Deputy Commandant for Plans, Policies, and Operations) and the means by which the doctrine, tactics, techniques, procedures, training standards, curricula, and institutional training programs are established and kept current. As such, MCTOG will assist the GCE Advocate in developing standardized GCE individual and collective capabilities that are linked to best practices, current TTPs, and emerging requirements.

MARINE CORPS LOGISTICS OPERATIONS GROUP (MCLOG)

Deputy Commandant, Installations and Logistics and Commanding General, Training and Education Command, partnered to establish the Marine Corps Logistics Operations Group (MCLOG). The MCLOG provides a capability similar to the Marine Corps Tactics and Operations Group (MCTOG) and Marine Aviation Warfare Training Squadron (MAWTS)-1 for logistics units in the operating forces. MCLOG will report to the Commanding General, Marine Air Ground Task Force Training Command (MAGTF TC), and will be located at Twentynine Palms.

MCLOG will serve as the following:

- The single logistics operations training element responsible to synchronize the logistics training and education continuum on behalf of the Logistics Advocate
- The lead for providing advanced and standardized tactical logistics operations training and education on behalf of the Logistics Advocate
- The logistics doctrine proponent on behalf of the Logistics Advocate.

MCLOG will implement the Logistics Tactics Training Program (LTTP) to enhance combat readiness and performance of logistics personnel and Logistics Combat Element (LCE) units in MAGTF operations. The cornerstone of the LTTP will be the graduate-level logistics operations courses, and the assignment of graduates to logistics operations officer billets in all elements of the MAGTF.

MCLOG also will work with MCTOG and MAWTS-1 to integrate Ground Combat Element; Aviation Combat Element; and LCE training and tactics, techniques, and procedures within the Tactical Logistics Operation Center (TLOC) through an Advanced Unit Collective training program that will assist LCE unit staffs in C2 and planning skills with a focus on logistics operations. This program will use tailored unit training packages, exercise support, and unit defined Mobile Training Team support packages to train logistics unit battle staffs either at the MCLOG facility, or in support of home station training.

JOINT, INTERAGENCY, AND MULTINATIONAL (JIM) TRAINING

Leveraging several joint initiatives from the Office of the Secretary of Defense, the Chairman Joint Chiefs of Staff, and the newly formed J7 (Joint and Coalition Warfighting, or JCW) on the Joint Staff, Training and Education Command 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), the Training and Education Command (TECOM) has integrated specific joint context solutions to identified joint training shortfalls at U.S. Marine Corps Joint National Training Capability-accredited programs, which include:

- Marine Air Ground Task Force Training Command (MAGTF TC), Twentynine Palms, California
- Marine Aviation Weapons and Tactics Squadron-1 (MAWTS-1), Yuma, Arizona
- Marine Air Ground Task Force Staff Training Program (MSTP), Quantico, Virginia
- Mountain Warfare Training Center (MWTC), Bridgeport, California
- Marine Corps Tactics and Operations Group (MCTOG), Twentynine Palms, California

The JNTC also provides several tools that support the incorporation of joint training into Service Title 10 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, reconfigurable network that supports joint training exercises, and the evaluation of new warfighting concepts. Additionally, it allows for inter- and intra-Service forces to link "Service-owned" training and simulation networks to train in a live, virtual and constructive environment that blends live tactical forces with manned simulators and sophisticated computer models. A second tool is the JNTC sponsored, Joint Training Coordination Program, which assists Marine Corps JNTC-accredited programs in gaining participation of others services at their training and exercises.

INTERAGENCY COOPERATION AND TRAINING: INTERAGENCY COOPERATION AND TRAINING

TECOM leverages interagency participation such as subject matter expert attendance at pre-deployment training to increase realism and meet mission-training standards at pre-deployment training programs. Through efforts with the U.S. Agency for International Development, the Marine Corps Civil-Military Operations School, and MCTOG, deploying units have been trained in the use of the District Stability Framework assessment tool, which assists commanders with identifying the root causes of instability in their location, and target efforts to address these problems. Similarly, TECOM provides input to civilian training efforts to make them more accessible to Marine units, such as the Department of Agriculture's Agricultural Development for Afghanistan Pre-Deployment Training program. TECOM also assists the State Department's Bureau of Conflict and Stabilization Operations by supporting annual training aboard Marine Corps Base (MCB) Quantico for a civilian capstone exercise centering on the Civilian Response Corps.

MULTINATIONAL TRAINING

Coalition partners are invited to participate in service-level training when feasible and relevant. One focus area is on operational level interaction, primarily through coordination and reciprocal participation in mission rehearsal exercises with partner nations where USMC units will serve as higher headquarters during current operations. Additionally, institutional-level interoperability is being pursued through staff and instructor exchange programs in respective training organizations. Opportunities to incorporate coalition partners into MAGTF TC training events such as En-

hanced Mohave Viper or the Weapons and Tactics Instructor Course are frequently pursued and exploited.

FUTURE TRAINING: MAGTF TRAINING PROGRAM

The Training and Education Command (TECOM) is developing the next generation of training for Marine operating forces to prepare for future fights and operating environments. The Marine air Ground Task Force (MAGTF) Training Program will establish, define, and integrate the requirements for training programs and resources that will facilitate the development of warfighting capabilities in those operational forces comprising 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 battalion, or squadron, to Marine Expeditionary Force (MEF)-level. Most importantly, 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.

INTEGRATED TRAINING EXERCISE (ITX)

The ITX provides a battalion- or squadron-level collective training event supporting training in skills required to accomplish assigned core mission essential tasks, 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, ground combat, logistics combat, 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.

LARGE-SCALE EXERCISE (LSE)

The LSE is a Marine Expeditionary Brigade (MEB)/MEF-level exercise program that will use live-virtual-constructive training linked through a supporting network across the United States and with amphibious forces afloat, or ashore, to focus on the integration of headquarters organizations and their ability to conduct integrated MAGTF operations. It can be used as the final pre-deployment training event for a MAGTF that 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, depending on requirements of the MEF commander. The LSE will increase joint and amphibious capabilities as the Marine Corps reconstitutes its full amphibious capability.

AMPHIBIOUS CORE TRAINING

The Marine Corps is developing and refining key training programs to reinvigorate our amphibious capability. 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 MAGTFs by training alongside the Navy through such exercises as amphibious landing exercises and MEB-level exercises.

TRAINING AND EDUCATION ENABLERS

MARINE CORPS TRAINING INFORMATION MANAGEMENT SYSTEM (MCTIMS)

MCTIMS is the Marine Corps emerging enterprise information system for training development and management. An official program of record with Marine Corps Systems Command oversight, MCTIMS web-enabled applications work in concert with Oracle databases containing USMC training information to provide integrated applications that serve all Marine Corps training development and management needs.

MCTIMS is the authoritative data source for all training data, generating, maintaining, sharing, and reporting training data as required by other Marine Corps and service-level systems. Early MCTIMS developments directly supported the mission of TECOM to provide entry-level trained Marines to the operating forces and supporting establishment. In the near future, units will use MCTIMS to develop the units' training plans, training schedules, and record training achievements.

MCTIMS is a government-owned software application that is available for use by the total force. The system standardizes Marine Corps training development and management by aligning to the Systems Approach to Training process.

TRAINING & READINESS (T&R) DEVELOPMENT MODULE

The T&R Development Module is the backbone of the MCTIMS suite of modules. This module is used during T&R Development and Review Conferences to build or maintain individual and collective events and manage T&R data. The TECOM and Education Command (EDCOM) staff uses this web-based application to capture individual and collective training standards for an occupational field and Military Occupational Specialty (MOS) to produce the T&R manual. T&R Manuals provide commanders in the Operating Forces, Supporting Establishment, and formal learning centers with a tool for the planning and implementation of progressive training that ultimately will ensure individual and collective proficiency.

MILITARY OCCUPATIONAL SPECIALTY (MOS) MANUAL MODULE

The MOS Manual Module supports TECOM's Ground Training Division mission to manage the MOS Manual for the Marine Corps. This module provides the capability to store web-based MOS Manual data to expedite the annual review and reduce the labor associated with management of the MOS Manual.

MOS ROADMAP MODULE

TECOM and EDCOM use this web-based application to guide individual Marines on career training and education. Roadmaps are single-source documents containing grade-specific information related to training and education requirements from which Marines can make informed career decisions regarding assignment, training and education requirements and career progression opportunities. Leaders use the roadmap as an aid to counsel and mentor subordinates.

UNIT TRAINING MANAGEMENT (UTM) AND INDIVIDUAL MARINE MANAGEMENT (IMM) MODULES

The UTM and IMM modules are the latest MCTIMS development efforts designed to directly support the Operating Force. The UTM module provides commanders with a toolkit that aligns with the unit training management process outlined in Marine Corps Reference Publication 3-0A, the Unit Training Management Guide. This capability enables commanders and their staff to execute doctrinal UTM practices via an automated system. Other capabilities within this module will allow units to record, track, and evaluate all unit collective-training requirements.

ADDITIONAL MCTIMS DEVELOPMENTS TO SUPPORT THE MARINE CORPS

Two additional MCTIMS developments fielded during FY 2011 are the Curriculum Library and the Electronic Training Jacket (ETJ). The Curriculum Library provides Marines in the operating forces access to formal learning center course materials to support training and standardize instructional materials throughout the Marine Corps. Marines operating forces will be able to access lesson plans, student outlines, instructor preparation guides, and media to support unit training requirements. The ETJ provides a cradle-to-grave record of all training accomplishments for all Marines viewable by the individual Marine or their commander.

OTHER FORMAL SCHOOL MANAGEMENT CAPABILITIES

The Curriculum Management (CMD) Module. TECOM and EDCOM staff and schoolhouse curriculum developers use this web-based application to create and manage curriculum for Marine Corps formal schools. The use of this module is mandated for the production of Marine Corps programs of instruction.

The Student Evaluation (SEV) Module. TECOM and EDCOM staffs use this web-based application to construct tests, record test data, track student scores and grade point averages, and generate reports. The SEV module controls the synchronization of this data with the external Question-Mark Perception applications. Student evaluation is also used to create survey questionnaires and track student responses.

The Student Management Module. TECOM staff uses this web-based application to manage rosters, units, and individual students for Marine Corps formal schools.

Student Registrar. The Student Registrar Module is management by the Formal School Training Division, TECOM. The TECOM and EDCOM staffs use this web-based application to manage class rosters and student registrations.

MODELING & SIMULATIONS (M&S)

TRAINING AND EDUCATION ENABLERS

Marine Air Ground Task Force (MAGTF) Training Simulations Division (MTSD), a directorate of the Training and Education Command (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 environment. MTSD also addresses simulation system integration, interoperability, interconnectivity, compatibility, and networking. Participants in this forum are drawn from across the Marine Corps and the science and technology community. With this forum's input, TECOM has published the Training and Education Modeling and Simulation Master Plan. The purpose of the plan is to inform Marines and other stakeholders of current and future efforts pertaining to training simulations and to guide the development and sustainment of effective simulation-based training in support of the operating forces.

Small-unit training is receiving particular focus by TECOM to prepare Marines for today's and future operating environments. The Squad Immersive Training Environment (SITE) program will significantly enhance collective training for the squad. 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" should include current virtual and live 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 (ECO) concept, MTSD is examining the networking and interoperability 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.

TECOM's request to integrate the Marine Corps MAGTF Tactical Warfare Simulation system into its joint live, virtual, and constructive (JLVC) federation was approved. 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, the MROC approved TECOM's Live, Virtual, and Constructive Training Environment (LVC-TE) Initial Capabilities Document that outlined desired LVC-TE capabilities. This analysis identified gaps in the Marine Corps ability to network 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 future joint and other exercises.

MISSION-CAPABLE TRAINING RANGES

Marine Corps combat readiness depends on the continued availability of Ranges and Training Areas (RTAs) that provide opportunities for realistic, mission-oriented training in multiple, complex environments. To this end, the Marine Corps Training and Education Command (TECOM) continues to execute the comprehensive Mission-Capable Ranges Program. The purpose of Mission-Capable Ranges is to plan, program for, and execute the development, modernization and sustainment of RTAs, and the delivery of comprehensive range services and training support to the warfighter. Mission-Capable Ranges is requirements-driven, incorporating standards articulated in Marine Corps Reference Publication (MCRP) 3-0C *Operational Training Ranges Required Capabilities*, and requirements-based assessments of the capabilities of RTAs.

TECOM has established six cornerstone objectives

for Mission-Capable Ranges, including:

- Preserve and enhance the live-fire combined arms training capabilities of Marine Corps Air Ground Combat Center/Marine Air Ground Task Force (MAGTF) Training Command, Twenty-nine Palms, and Marine Corps Air Station (MCAS) Yuma Range Complex
- Recapture and enhance MAGTF and unit training capabilities of the nation's two premier littoral training areas, Camp Lejeune and Camp Pendleton
- Leverage technology to support every level of training with a goal of providing timely and objective feedback to the training audience
- Honor our commitments to protecting the environment, while preserving and enhancing our ability to conduct live-fire and maneuver training
- Facilitate cross-service employment of Marine Corps training ranges, and ensuring Marine Corps access to other-service ranges
- Support the Joint National Training Capability with the common range infrastructure and systems architecture to ensure effective joint training

Mission-Capable Ranges provides the Marine Corps with a comprehensive, fully developed strategy for providing modern RTAs and related services that are focused on current and future needs of the warfighter. The cornerstone of the program is **range modernization** through:

- Sustainment of ranges to maintain capabilities and protect range investments
- Re-capitalization to upgrade or replace existing ranges and range resources
- Investment in new ranges that leverage advanced range instrumentation, targets, and training systems.

In recent years, the program has focused primarily on range modernization at the installation level and on assessing and supporting initiatives to address long-term requirements for sufficient land area and airspace for training. At our installations, Mission-Capable Ranges has delivered the range resources to support training requirements emerging from the theaters of operation, particularly those relating to urban and counter-IED tactics. Since 2006, the program has made unprecedented investments (approximately $700 million) in Marine Corps training infrastructure.

As we look to the future, the program will increase its focus on realistic, immersive training environments for our Marines using integrated systems for tactical engagement, range instrumentation, interactive targets, threat simulators, and after-action review. Additionally, TECOM has initiated a comprehensive effort to field Training Support Centers at our major training bases to facilitate efficient and effective utilization of the full suite of RTAs and other training resources by the operating forces.

With regard to service-level initiatives, Mission-Capable Ranges has focused on three shortfalls:

- The inability of Marine Corps ranges to fully exercise

a large MAGTF in a realistic, doctrinally appropriate training scenario
- Inadequate training opportunities for the Marine units stationed in the western Pacific and Hawaii
- Inadequate aviation training facilities on the east coast of the United States with range capabilities such as those provided by MCAS Yuma on the west coast.

TECOM will continue to focus on meeting these deficits. Concurrently, TECOM will engage in forward–looking initiatives as it confronts future challenges to RTA capabilities, including potential limitations on resources available for range modernization and sustainment. Sufficient commitments to sustaining and enhancing range capabilities are necessary to ensure RTAs continue to fully support the training requirements of the Marine Corps.

COMBINED ARMS COMMAND AND CONTROL TRAINER UPGRADE SYSTEM (CACCTUS)

DESCRIPTION

The CACCTUS is a combined arms staff training system that, when fully fielded will enable comprehensive Marine Corps staff, unit, team, and individual 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 Marine Air Ground Task Force (MAGTF) elements up to and including the Marine Expeditionary Brigade (MEB) level.

Using the system components and simulation capabilities, two-dimensional and three-dimensional visuals, interfaced Command, Control, Communication, Computers and Intelligence (C4I), synthetic terrain, and an After-Action Review (AAR), CACCTUS immerses trainees in a realistic, scenario-driven environment. The simulated scenarios enable commanders and their battle staffs to train or rehearse combined arms tactics, techniques, procedures and decision-making processes prior to any physical engagement. In addition, CACCTUS provides training across live, virtual, and constructive training networks through interoperability with appropriate C4I systems in a training environment.

OPERATIONAL IMPACT

The CACCTUS provides 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.

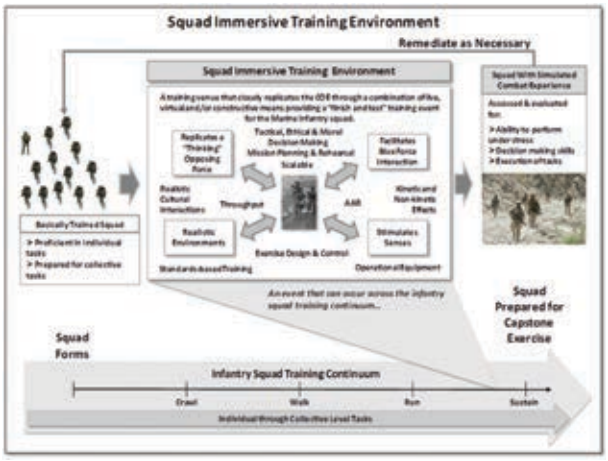
PROGRAM STATUS

All five CAST facilities have been fielded with Version 5.2.1. Authority to operate as a standalone system was granted in August 2011.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:
Riptide Software, Inc. Oviedo, Florida

SQUAD IMMERSIVE TRAINING ENVIRONMENTS (SITE)



DESCRIPTION

SITE is an integrating training construct focused on preparing squads for missions in the contemporary operating environment. These environments will provide the commander training venues to better prepare infantry squads, while enhancing existing training systems that meet the essential training capabilities for small unit and squad leader development. SITE also provides centralized management and oversight for the small unit and squad training capabilities, with decentralized execution for development and fielding of individual increments. The program leverages efforts across the Science and Technology community and provides means to aid the transition of most technologically advanced capabilities into Programs of Record.

OPERATIONAL IMPACT

SITE addresses the following training capability gaps:

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

Provides USMC Vision and Strategy 2025-CMC Planning Guidance:

- Improve training and experience level for Maneuver Unit Squad Leaders.

PROGRAM STATUS

Research Development Test and Evaluation is planned in FY 2013 for Live Core System enhancements and in FY 2014 for Virtual Core System enhancements.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:
TBD

SUPPORTING ARMS VIRTUAL TRAINERS (SAVT)

DESCRIPTION

The SAVT advances the training capability, operational readiness, and tactical proficiency of Marine Corps joint terminal attack controllers, forward observers, and forward air controllers. This virtual simulator provides personnel with training scenarios that require the placement of tactical ordnance on selected targets using Joint Close Air Support procedures and observed

fire procedures. These scenarios will allow for practical application of Naval Surface Fire Support, artillery and mortar fire, neutralization, suppression, illumination, interdiction, and harassment fire missions.

OPERATIONAL IMPACT

Simulation events can replace 33 percent of Marine Corps live-fire Training and Readiness requirements, as well as Joint Service currency training requirements.

PROGRAM STATUS

Six systems have been installed, one each at Camp Lejeune, Twentynine Palms, Camp Pendleton, Marine Corps Base Hawaii, Marine Corps Air Stations Yuma, and Okinawa. During January 2012, the MCAS Yuma system was part of the Proof of Concept linking the SAVT with the AV-8B aircraft trainer. The Yuma SAVT has been assigned to Aviation Weapons Systems Requirements Branch for further refinement with the inter-operability between these two systems and other simulation trainers in the future.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:
TJ Inc., Christmas, Florida

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. The division does so in the following ways:

- By making the Corps 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
- Assisting in the Marine Corps use of military history to aid in professional military education and training and to provide background and precedents for decision-making.

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 on the campus of Marine Corps University (MCU).

The 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. For example, the Reference Branch fulfills several specific functions and to perform these functions maintains topical working files that cover five areas: (1) specific history subjects; (2) biographical files on prominent Marines; (3) unit files; (4) photo files; and (5) geographic area files.

As part of its mission, the Division also 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. During 2010, History Division also expanded the operations of MCU Press. It will 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 November 10, 2006. Located in Quantico, Virginia, the NMMC is one of the most popular cultural attractions, with an average annual visitor attendance of more than 500,000 during each of its first five years. Its exhibitions recreate environments and immerse visitors into Marine Corps action. NMMC's mission encompasses the following activities:

- Collecting and preserving objects that reflect the history of the Corps
- Interpreting Marine Corps history
- Educating students and families
- Conducting collections-based research
- 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 and conference center, artifact storage and restoration building, 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 42,000 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.

Working with curators and historians, an in-house exhibitions team 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. 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 Arch during Marine Week Saint Louis in 2011.

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 generations of Americans.

In addition to the NMMC, command-specific museums are located at Recruit Depots San Diego, California, and Parris Island, South Carolina; Marine Corps Air Station Miramar, California; and at the Marine Corps Mountain Warfare Training Center Historical Display at Bridgeport, California. These museums reflect the unique interests and objectives of those facilities. For additional information, see www.usmcmuseum.org.

CENTER FOR ADVANCED OPERATIONAL CULTURE AND LEARNING (CAOCL)

The CAOCL is tasked with ensuring that Marines are regionally focused, globally prepared, and effective at navigating and influencing culturally complex 21st-century operating environments. CAOCL provides operationally relevant products and services and accomplishes its mission by ensuring a comprehensive response to the Corps needs through various means.

POLICY AND PLANNING

CAOCL supports the Marine Corps in formulating policies, plans, and strategies to address regional understanding, operational culture, and language familiarization requirements across the doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) spectrum.

REGIONAL, CULTURE, AND LANGUAGE FAMILIARIZATION (RCLF) PROGRAM

CAOCL serves as the administrator and coordinator of the Marine Corps RCLF Program, which is a career-long training and education program that begins at accession and instills, develops, and sustains a basic language, regional, culture capability in our career Marines to ensure that the Corps has assets within each unit to assist in operational planning and execution in all operationally significant regions of the world. The RCLF Program is still under development but has met several key milestones on the path to full implementation, with three of six planned officer instructional blocks launched and five enlisted instructional blocks becoming available in 2012. As of late 2011, there were more than 8,000 Marine officers with regional assignments, with enrollment set to substantially grow

with the launch of the enlisted instructional block for sergeants.

PRE-DEPLOYMENT TRAINING AND RESOURCES

Language Familiarization Training. CAOCL serves as the central point of coordination for language familiarization training for all general-purpose Force Marines other than Foreign Area Officers and professional linguists. CAOCL uses a combination of on-staff language instructors, Defense Language Institute language instructors, and computer-based language training products to meet the operational requirements of Marines and units preparing for worldwide deployments. CAOCL language familiarization programs, regardless of method of delivery, focus on mission-oriented tactical phrases most likely to be used by Marines during exercises and operations.

CAOCL maintains Language Learning Resource Centers (LLRCs), which are technology-enhanced classrooms equipped with culture and language study materials and software, at eight major Marine Corps bases and stations to facilitate culture and language training for individual Marines and units. This helps commands meet pre-deployment training requirements and home-station sustainment training requirements. CAOCL also provides phrase cards for ready reference in deployed environments.

Operational Culture Training. CAOCL provides operational culture training via mobile training teams for Marines and units deploying anywhere in the world, focused on those operationally relevant aspects of culture that will enhance Marines' ability to navigate and influence a specific operating environment during the accomplishment of their missions.

CAOCL provides Operational Culture-General instruction, preparing units with skills to work within any culture around the world. The center also provides Operational Culture-Specific classes and briefs for units who need to learn about the cultures they will operate within during a specific deployment and mission. CAOCL likewise assists units in practicing techniques for incorporating operational culture into their planning process. CAOCL incorporates the integral skills of using an interpreter, understanding and using non-verbal communications, and interacting with a foreign population into culture training. Focusing primarily on commanders and key personnel, CAOCL also provides Key Leader Engagement training, which combines culture and language skills for effective cross-cultural communications. Additionally, CAOCL publishes and distributes a variety of cultural reference material and field guides to assist Marines while deployed or during training.

CAOCL Liaison Officers at each Marine Expeditionary Force (MEF) assist Marine units in accessing resources, scheduling training, and fulfilling culture and language training requirements.

OPERATIONAL SUPPORT

CAOCL provides subject matter experts in direct support of the operating forces. These experts assist commanders in understanding the cultural terrain of the battlespace and in planning operations. They serve as evaluators and advisors during mission rehearsal exercises, assist in scenario and exercise design when requested, and provide a reach-back resource for deployed forces for issues related to operational culture. Cultural Advisors to MEF and Ground Combat Element (GCE) commanders serve as special staff officers during pre-deployment training and deploy with the units as integral members of operational staffs for specified deployments to provide personal advice to commanders and to assist in integrating operational culture into the planning process.

PROFESSOR OF OPERATIONAL CULTURE

CAOCL maintains a faculty member at Marine Corps University (MCU) for providing instruction during Professional Military Education to MCU students on the concept of operational culture and its ap-

plication in Marine Corps planning and operations. The professor also conducts ongoing research on the subject of operational culture.

TRANSLATIONAL RESEARCH GROUP

The Translational Research Group (TRG) supports CAOCL's activities by providing the scientific basis and scholarship — specifically oriented on Marine Corps missions and guidance — required for training, education, policy, and programming. The TRG conducts the work necessary to ensure that the globally applicable concepts and skills of social science are "operationalized" for use by Marines, as well as leveraging expertise from other organizations. TRG also has responsibility for developing valid assessment platforms to ensure CAOCL's activities are meeting the needs of the operating forces. TRG brings together scientists with critical disciplinary backgrounds that are uncommon in the Department of Defense. Therefore, although focused on CAOCL, TRG's expertise is also brought to bear on broader issues of interest to the Corps Training and Education Command, such as resiliency.

SECTION 4: FIRE SUPPORT

INTRODUCTION

In 2007, the "Major Combat Operations Analysis for Fiscal Years 2014 to 2024" study scrutinized the in-service 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 require 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 in-service 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 face across the full range of military operations.

The foundation of ground indirect fires is the M777A2 Lightweight 155mm howitzer that, through design innovation, navigation and 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" of Marine Corps ground indirect fires is the Expeditionary Fire Support System (EFSS), a towed 120mm mortar. EFSS will be the principal indirect fire support system for helicopter- and tiltrotor-borne forces executing ship-to-objective-maneuver as part of a MAGTF. When paired with an Internally Transportable Vehicle, EFSS can be transported on board MV-22 and CH-53E/K 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, and the Target Location, Designation and Handoff system. In addition, the development of precision guided munitions, such as Excalibur, Guided Multiple-Launch Rocket System and the Precision Extended Range Munition, has shown lethality on the battlefield while minimizing collateral damage.

HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)

DESCRIPTION

HIMARS is a C-130 aircraft-transportable, wheeled, indirect-fire, rocket/missile system capable of firing all rockets and missiles in the in-service and future Multiple-Launch Rocket System 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 basic 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 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.

PROGRAM STATUS

The HIMARS program is in the operations and support phase. HIMARS achieved Initial Operational Capability in the fourth quarter of FY 2008 and Full Operational Capability in FY 2010. In early 2012, HIMARS was fielded to two additional battalions (one active and one Reserve) in the Marine Corps. The program continues to procure munitions in support of operations and sustainment.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

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

LIGHTWEIGHT 155MM HOWITZER (LW155)

DESCRIPTION

The LW155 is a joint Marine Corps/Army program whose mission is to develop, produce, field and sustain a towed 155mm howitzer. Designated the M777A2, the LW155 replaces the M198 Howitzer providing direct, reinforcing and general support fires for both services.

The LW155 incorporates innovative design technologies to reduce the system weight to less than 10,000 pounds while providing increased mobility, survivability, deployability and sustainability in expeditionary operations throughout the world. It is the first ground combat system whose major structures

are made of high-strength titanium alloy resulting in a weight savings of more than 7,000 pounds when compared to the M198 system. The system makes extensive use of hydraulics to operate the breech, loading tray, and suspension system reducing crew size and fatigue. The M777A2 provides significant improvements in displacement and emplacement, capable of being emplaced in less than 3 minutes and displaced in 2-3 minutes. A primer feed mechanism supports firing a maximum of four rounds per minute, with sustained firing of two rounds per minute. 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.

The M777A2 is a pre-planned upgrade to the initial M777 design that adds a Digital Fire Control System (DFCS) improving pointing accuracy to 1 mil. The DFCS uses a global positioning system, an inertial navigation unit, and a vehicle motion sensor to accurately locate and orient the weapon to deliver greater accuracy and responsiveness. The system integrates radios for voice and digital communications and a chief of section display that can be mounted into the cab of the prime mover for use as a navigation aid during towing. The systems mission computer processes fire missions and outputs pointing information to on-board gunners and chief of section displays. A planned software upgrade will support on-board ballistic computations commencing in the fall of 2013.

OPERATIONAL IMPACT

The LW155 provides significantly greater combat capability to troops. The weight reduction improves transportability and mobility without impacting range and accuracy. The M777A2 is towed by the USMC Medium Tactical Vehicle Replacement and can be airlifted by the CH-53E/K, CH47D and the MV-22B Osprey into remote high-altitude locations inaccessible by ground transportation.

The M777A2 can fire the precision guided Excalibur munitions up to 24 miles with sufficient accuracy, for example, to target commensurate portions of a building, reducing the chance of non-combatant casualties and enabling supporting fire to be delivered much closer to friendly troops. The M777A2 has proven it is battle worthy and reliable, achieving an operational availability greater than 90% supporting Operation Enduring Freedom for USMC, Army and Canadian forces.

PROGRAM STATUS

The LW155 has been in-service with the U.S. Marine Corps and Army since 2005 and is deployed in current operations. The Marine Corps has procured its full approved acquisition objective of 511 M777A2 howitzers while the Army has purchased 488 systems. Both services will take final deliveries during 2013. The Canadian army purchased 37 base-model M777s under a foreign military sale contract while the Australian army has purchased 54 M777A2s to date. The Government of India has also expressed interest in purchasing the M777A2 submitting a Letter of Request for 145 systems in Nov 2012.

Developer/Manufacturer:

The M777A2 prime contractor is BAE Systems located in Barrow in Furness in the United Kingdom. BAE Systems manages a supply chain consisting of both US and UK vendors who deliver components for final integration at BAE systems integration facility in Hattiesburg, MS. The Program Manager -Towed Artillery Systems also supplies a number of Government Furnished Equipment items, including the Cannon Assembly manufactured by Watervliet Arsenal. Final acceptance testing occurs at Yuma Proving Grounds.

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

DESCRIPTION

The GYK-60 AFATDS is an automated fire-support Command and Control system that provides the Marine Air Ground Task Force (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, including artillery, rockets, mortars, naval surface fire support, and close air support. Additionally, the 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 hand-held computer system that resides on a Ruggedized Personal Digital Assistant 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:

- Centaur, the Light-Weight Technical Fire Direction System application for computing safety parameters and artillery technical firing solutions
- Field Artillery Survey Program software to compute artillery survey data
- The meteorological software application to convert raw meteorological Plot Balloon readings into ballistic and computer meteorological messages

The TSQ-17 MTS is a modified U.S. Army-procured shelter mounted on a High-Mobility Multiple Wheeled Vehicle employed by the battery Fire Direction Center (FDC), Battery Operations Center, and Fire Support Teams. 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 provides environmental protection for AFATDS at the battalion and above.

OPERATIONAL IMPACT

AFATDS will be the primary Commanders Fire Support Coordination System employed from Marine Expeditionary Force 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 II for the Army. The AFATDS is a multiple service program and the Army is the Executive Service. The AFATDS program is in Sustainment. MTS achieved Initial Operational Capability in first quarter FY 2012. Full Operational Capability will be achieved in second quarter FY 2013.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:

AFATDS: Raytheon, Ft Wayne, IN

BUCS: Fire Support Engineering Division, Army

MTS: SPAWAR, Charleston, SC

FAMILY OF TARGET ACQUISITION SYSTEMS (FTAS)

DESCRIPTION

The FTAS is the Ground Combat Element's indirect-fire acquisition capability. The FTAS comprises the TPQ-46 Firefinder Ground Weapons Locating Radar (GWLR), the TPQ-48 Lightweight Counter Mortar Radar (LCMR), and the TSQ-267 Target Processing Set (TPS).

OPERATIONAL IMPACT

The AN/TPQ-46 Firefinder has the ability to locate indirect-fire weapons — which include mortars, artillery, and rockets — within a 1,600 mil search sector from ranges of 0.75 to 24 kilometers. It is the primary indirect fire-detection system in the Marine Corps. The TPQ-48 LCMR provides a 6,400 mil mortar-detection capability at ranges of 1 to 5 kilometers, short-range detection coverage, and slewing/cueing intelligence to the TPQ-46 via the TSQ-267.

The TSQ-267 TPS is the command and control node of the FTAS capability, providing radar deployment orders, support functions, and target data to the counter-fire/countermeasure-servicing agent. The TPS uses the Advanced Field Artillery Tactical Data System as its primary communication, and Command and Control 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 to Afghanistan supporting operations associated with *Operation Enduring Freedom*. The Marine Corps recently procured and fielded an additional 22 Firefinder radar systems to support expanded requirements. These procurements supported an increased Approved Acquisition Objective (AAO) for the Firefinder from 22 to 44 systems. The LCMR was procured and fielded under an AAP as a solution for an approved Urgent Universal Needs Statement, with an AAO of 46 systems. Procurements for both the Firefinder and LCMR were funded using Overseas Contingency Operations supplemental procurement funding. The AAO for the TPS is seven sets, two for each active-duty artillery regiment and one for the Reserve Component. Full Operational Capability for the TPS occurred in September 2011.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:

AFATDS: Raytheon, Ft Wayne, IN

ESCALATION OF FORCE-MISSION MODULE (EoF-MM)

DESCRIPTION

The Escalation of Force-Mission Module (EoF-MM) consists of multifunctional, non-lethal systems and force protection equipment needed to minimize friendly and civilian casualties. The EoF-MM is the replacement of the in-service Non-Lethal Capability Sets (NLCS) and Force Protection Capability Sets (FPCS) procured in the 1990s and 2000s.

The EoF-MM consists of selected equipment that is used during escalation of force situations. The equipment and supplies contained in the EoF-MM allow the Marine to accomplish several different tasks in direct support of defined Marine Corps missions.

The EoF-MM consists of commercial-off- the-shelf (COTS) and government-off-the shelf (GOTS) equipment. The COTS/GOTS equipment is configured into capability groups, capability modules, and equipment sets. The groupings and modules define the location of the COTS/GOTS within the containers. The grouping and module structure will facilitate easier transport by tailoring to the mission demands and replacing and adding of new technologies.

The EoF-MM consists of three capability groups, ten capability modules. Each module consists of specific equipment necessary to support that module's capability mission. The modules are configured to fit within four Quadcon containers.

OPERATIONAL IMPACT

The EoF-MM provides the appropriate 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 and complement existing lethal capabilities.

Capability Groups	Capability Modules
Checkpoint Group	Vehicle Check Point
	Entry Control Point
	Urban Patrol
	Establish and Secure Perimeter
	Convoy Security
	Clear Facilities
	Conduct Cordon
Crowd Control Group	Crowd Control
	Detain Personnel and Conduct Search
Training Group	Training

PROGRAM STATUS

The EoF-MM program is currently in the Operation and Support phase. However, due to the operational need for additional systems, the program will return to the Production and Deployment phase in order to procure an additional 40 systems. The award of a contact should occur in the third quarter of FY 2012.

Procurement Profile:	FY 13	FY 14
Quantity:	20	20

Developer/Manufacturer: TBD

SECTION 5: COMMAND AND CONTROL/ SITUATIONAL AWARENESS (C2/SA)

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 C2, approved in 2009, incorporate joint integrating concepts and C2 mandates. Together, they articulate our goal of delivering end-to-end, fully integrated, cross-functional capability, including forward-deployed and reach-back functions. They emphasize that C2 must be leader-centric and network-enabled, and that individual Marines must understand their commander's intent and be able to carry out complex operations. The C2 ICD, Functional Concept, and the Marine Corps Information Enterprise strategy described in this section will enable Marine Air Ground Task Force (MAGTF) commanders to exercise effective C2 and bring together all 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.

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

DESCRIPTION

The AC2 FoS and the MACCS FoS sustainment efforts support the systems employed by Marine Air Command and Control System tactical agencies and operational facilities. Each MACCS agency performs different functions and tasks and using different equipment suites fielded and supported by squadrons within the Marine Air Control Group (MACG) in support of the Aviation Combat Element. 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 future AC2 FoS consists of the following systems:

- Common Aviation Command and Control System (CAC2S), which achieved IOC in FY 2012 for phase 1
- Ground/Air Task Oriented Radar (G/ATOR), which will achieve IOC in FY 2016
- Composite Tracking Network, which achieved IOC in FY 2011)
- AN/TPS-59 radar, which is already fielded

The current MACCS FoS is in the operations and support life cycle phase and will be replaced by CAC2S phase 2:

- TYQ-23(V)4 Tactical Air Operations Module (TAOM)
- TSQ-269 Mobile TAOM (MTAOM)
- TYQ-101 Communications Data Link System (CDLS)
- MRQ-12(V)4 Communications Interface System (CIS)
- TYQ-87(V)2 Sector Anti Air Warfare Facility (SAAWF)
- UYQ-3B Direct Air Support Center/Airborne System (DASC/AS)
- MSQ-124 Air Defense Communications Platform (ADCP)
- URC-107(V)10 Joint Tactical Information Distribution System (JTIDS) Terminal

In addition to the core MACCS FoS, the FoS Sustainment Project Office has management responsibilities for the following equipment that will not be replaced by CAC2S:

- Link Management System Multi-Tactical Data Link (LMS-MT)
- GRC-171B(V)4 Ultra High Frequency (UHF) Radio
- USQ-140(V)11(C) Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT),
- TYQ-145 Beyond Line of Sight Gateway (BLOS-GW)
- GRC-256 High Frequency Radio

The MACCS FoS is responsible for one program that is in the deployment (as well as the O&S) phase. The TSQ-269 MTAOM achieved Initial Operational Capability in November 2011, with fielding continuing throughout FY 2012.

OPERATIONAL IMPACT

The MACCS FoS Sustainment Project Office ensures these systems, supporting the TACC, TAOC, and DASC, remain ready, relevant, and capable until Full Operational Capability of CAC2S is achieved in 2018. This is accomplished through selected engineering initiatives, software sustainment, and maintenance of the appropriate logistics resources.

PROGRAM STATUS

The re-baselined CAC2S program schedule has impacted all projected MACCS FoS support requirements and program funding. The MACCS FoS item-exit dates have been extended. Currently, the MACCS FoS will remain fielded through the end of calendar year 2018.

GLOBAL COMMAND AND CONTROL SYSTEM-TACTICAL COMBAT OPERATIONS (GCCS-TCO) SYSTEM

DESCRIPTION

The GCCS uses joint system-of-record software to provide select command-and-control capabilities throughout the Marine Corps. These capabilities facilitate the planning, execution, and management of 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, and unit readiness reporting is done via the Global Status of Resources and Training System (GSORTS). GCCS is fielded at the regiment and above echelons of command. TCO is the principle tool within the Marine Air-Ground Task Force for generating situational awareness through the distribution of the Common Tactical Picture (CTP). TCO also is the primary entry point for the joint-level 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 the ability to receive, fuse, store, develop, transmit, and display commander's critical information requirements.

OPERATIONAL IMPACT

GCCS is the joint command and control system that provides commanders with the information and capability to plan, execute, and manage operations, as well as the capability to report unit readiness. TCO provides the access and ability to contribute to the situational awareness provided by the CTP and COP, both internally to the Marine Corps and within the joint community.

PROGRAM STATUS

The GCCS program has reached the Approved Acquisition Object of 194 servers and 320 clients. GCCS is in the sustainment phase of its acquisition lifecycle. GCCS capabilities will be combined with the Joint Tactical Common Operational Picture Workstation in FY14, and the GCCS program will merge with TCO.

TCO is in the sustainment phase of its acquisition lifecycle, having reached Full Operational Capability in 1996. TCO will continue to sustain software upgrades across the Future Year Defense Plan as well as Marine Corps-wide hardware upgrade of both the Tactical Common Operational Picture Server and the Intelligence Operations Workstation Version 1 client in FY 2013.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

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

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 replace 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 combined command and control units. CAC2S will be comprised of 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 Automated Information System program. It has been restructured with a 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, including 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, Indiana, will oversee the integration and upgrades of the previously developed and fielded systems (e.g., 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 into a single subsystem (Aviation Command & Control Subsystem (AC2S) and with the 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 Joint Requirements Oversight Council in September 2007.

The program was designated a MAIS program on December 26, 2007, and elevated to an ACAT IAC. CAC2S Phase 1 successfully completed its Initial Operational Test and Evaluation in the third quarter of FY 2011. Subsequently, Phase 1 received its Full Deployment Decision in the fourth quarter of FY 2011 and Limited Deployment Capability (LDC) in February 2012. Phase 2 is currently in the Engineering and Manufacturing Development (EMD) phase with a Milestone C decision anticipated in the fourth quarter of FY 2014. The AAO for CAC2S Increment I is 50 AC2S, and 75 CS. Initial Operational Capability (IOC) for Phase 1 commenced 17 January 2012 with the first operational unit (MASS-3) at Camp Pendleton, CA, followed by 2d Marine Aircraft Wing (2d MAW), Cherry Point, NC, in August 2012.

THEATER BATTLE MANAGEMENT CORE SYSTEMS (TBMCS)

DESCRIPTION

TBMCS is an air war-planning tool mandated by the Chairman of the 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) 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

The USAF placed TBMCS into sustainment in 2007 following the release of version 1.1.3 which is now fielded throughout the operating forces and the joint community. The USAF Program Office (PO), in conjunction with the USN, USA and USMC Program Offices continue to sustain version 1.1.3 while planning for the eventual transition to a new system of record which the USAF PO is currently working on with the joint community. The Marine Corps PO has fielded TBMCS Maintenance Release (MR) 1/Service Pack (SP) 27, which provides key assault support enhancements for both planning and execution, and is in the final process of testing and approval for release of TBMCS MR2/SP1 which will provide USMC users with operating system and hardware upgrades.

COMBAT OPERATIONS CENTER (COC)

DESCRIPTION

The COC is a deployable, self-contained, centralized facility that provides shared command and control and situational awareness functionalities in a collaborative environment. The system is designed to enhance the tactical common operational picture for all levels of the Marine Air Ground Task Force (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 prime movers to provide mobility, modularity, and scalability for each assigned mission. From 1996 to 2011 there were three COC system variants (V) in production — 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 and enables critical warfighting functions: Command and Control (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 C2 Software Package. Based on service oriented architecture principles, this baseline will enable existing Tactical Data Systems (TDS) to share their data, producing an identical common tactical picture. To support such a robust software capability, the COC program will field a major hardware refresh in FY 2013 and FY 2014.

This hardware upgrade will be provided to support virtualization of COC software and the fielding of the COC C2 Software Package in FY 2012. The COC C2 Software Package is derived from the Tactical Service Oriented Architecture (TSOA), which is a set of reusable software components that can be used anywhere in the Marine Corps. These components are built to a newly defined MAGTF C2 Software Architecture that establishes the foundation for C2. The processes, patterns, practices used to develop components for the TSOA are described by the Expeditionary Software Development System. The deployment of Rapid Response Integration Teams to units in the fleet will directly support tailored, rapid application development.

OPERATIONAL IMPACT

COCs have been deployed to *Operation Iraqi Freedom* and *Operation Enduring Freedom*, as well as many other operational exercises and missions around the globe. COCs provide capabilities to 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 integration of commercial- and government-off-the-shelf technologies shorten 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 current Approved Acquisition Objective for all COC Variants is 309. The AN/TSQ-239 (V) 2, 3, and 4 reached Full Operational Capability in December 2011. (V) 2-4 are post-full-rate production and are in the operations and support phase of the acquisition life cycle. The COC program will continue to incorporate engineering changes and equipment technical refresh and insertion in order to address operational requirements for improved technical capabilities and new system interface requirements.

The COC (V)1, Marine Expeditionary Force level variant, is a new start Abbreviated Acquisition Program currently in production and uses the Deployable Joint Command and Control system as a baseline for the materiel solution. Three systems are allocated for procurement, one for each MEF. Initial Operational Capability will occur in FY 2014.

Procurement Profile:	FY 13	FY 14
Quantity:		
(V)1:	3	0

Developer/Manufacturer:

(V)2/3/4: General Dynamics C4 Systems, Scottsdale, AZ

(V)1: Naval Surface Warfare Center, Panama City Division, FL

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

DESCRIPTION

The G-BOSS(E) provides organic, around-the-clock persistent surveillance capabilities through the use of multi-spectral sensors and ground-surveillance radars configured on three distinct, mobile and flexible (heavy, medium, and light) platforms supporting an array of missions. All three variants can be employed by any size Marine Air-Ground Task Force, or elements within the MAGTF, in order to expand a commander's view of the battlespace. Sensor-derived information can be shared internally between sensor nodes and relayed to the Combat Operations Center (COC) for further analysis and sharing across the Global Information Grid. Information can be forwarded to intelligence, operations, and fire-support agencies or used organically as real-time actionable intelligence.

OPERATIONAL IMPACT

This will be a Marine Expeditionary Force (MEF)-level asset to be employed by the lower echelon units based on the assigned mission. The system allows for operation at permanent installations, forward operating bases (FOBs), combat outposts, and temporary tactical locations to observe the perimeter, avenues of approach, and/or areas of interest. Larger long-term FOBs and combat outposts will rely upon the heavy variant for long-range and close-in surveillance to observe areas and avenues of potential enemy approach. The medium (light trailer transportable) 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 family of systems is employed by the Marine Corps in *Operation Enduring Freedom*, based upon numerous Urgent Universal Need Statements. The G-BOSS 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. The G-BOSS(E) Initial Operational Capability is scheduled for FY 2015 and Full Operational Capability is scheduled for FY 2019.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:
NSWC Crane Division, Crane, IN

DRS Technologies, Parsippany, NJ

Argon ST, Fairfax, VA

MTEQ, Kilmarnock, VA

FLIR Systems Inc., Wilsonville, OR

SECTION 6: EXPEDITIONARY ENERGY

INTRODUCTION

> "The current and future operating environment requires an expeditionary mindset geared toward increased efficiency and reduced consumption, which will make our forces lighter and faster."
>
> *Gen James F. Amos*
> *Commandant, U.S. Marine Corps*

In 2011 the Commandant called on the Marine Corps to change the way we think about energy as we man, train, and equip our expeditionary force. As a Corps, we recognize that over the last ten years of combat, we have become more lethal, but have become critically dependent on fuel and batteries, putting our expeditionary capabilities and Marines at risk. Yet, the current and future security environment demands a "middle weight force," flexible to respond to a host of threats at a moment's notice, and able to sustain itself for significant periods, at a time and place of its choosing. *Modernizing our capabilities in expeditionary energy is critical to maintaining operational capabilities and readiness of the Force, for today's fight and tomorrow's conflicts.*

In March 2011 the Commandant issued the *Marine Corps Expeditionary Energy Strategy and Implementation Plan (Strategy)* with the goal of increasing our combat effectiveness through ethos, efficiency and renewable energy—from "Bases to Battlefield." The goal of the Strategy is simple: a lighter, faster and more lethal force, which goes farther and stays longer on every gallon of fuel, every kilowatt of energy it requires. Specifically, the Strategy directs the Marine Corps, by 2025, to create a Marine Air Ground Task Force (MAGTF) capable of maneuvering from the sea, and only requiring liquid fuel for mobility systems once ashore. This means C4I and life support systems will be powered by alternative and renewable energy and our vehicles will power larger ground systems when required. Recognizing that to achieve this bold vision would require institutional change, the Marine Corps put in place an framework to guide our efforts: the *Strategy, the Expeditionary Energy, Water, and Waste Capabilities Based Assessment and Initial Capabilities Document (E2W2 CBA/ICD)*, together with the 2012 Marine Corps Science and Technology Strategic Plan provide an investment plan to drive modernization in expeditionary energy.

EXPEDITIONARY ENERGY: FROM BASES TO BATTLEFIELD

THE FUTURE FORCE

One of the Commandant's six critical pillars of modernization for the Corps, Marine Corps investments in energy efficient equipment and renewable energy are essential to building a lighter, more capable MAGTF. Translating into greater military capability, these investments mean increased tactical and operational tempo, and reduced vulnerabilities during resupply. In short, they can mean the difference between reaching "Baghdad" or waiting for resupply. They save Marines time, with more focus on the enemy and less time spent planning and executing sustainment missions. Most importantly, by investing in training Marines we are reinforcing our expeditionary mindset, teaching Marines that resource efficiency is a force multiplier that increases combat effectiveness.

REQUIREMENTS

In September 2011, the Assistant Commandant of the Marine Corps signed a comprehensive requirements document to guide our investments in our equipment and our people: the E2W2 CBA/ICD. This document provides the analytical framework for developing the solutions to build the future force. The E2W2 CBA/ICD identifies 152 gaps, including materiel and non-materiel gaps, and together with the Strategy, provides a prioritized roadmap that the Marine Corps is using to systematically focus investments and drive combat development.

Catalyzing the next generation of capabilities, the Marine Corps 2012 Science and Technology Strategic Plan is the third element of our framework. It identifies six priority areas to lead turn the S&T enterprise: (1) expeditionary energy harvesting; (2) temperature-independent electronics; (3) expeditionary water harvesting; (4) energy-efficient, combat-effective mobility; (5) optimized personnel performance; and (6) energy storage other than liquid.

EXPERIMENTAL FORWARD OPERATING BASE

In November 2009, the Deputy Commandant for Combat Development and Integration established the Experimental Forward Operating Base (ExFOB) to identify, evaluate, and accelerate the Marine Corps materiel solutions to achieve the mission of the Strategy. ExFOB brings together stakeholders from across the Marine Corps requirements, acquisitions, and science and technology-development communities to systematically focus on capability gaps identified in the E2W2 CBA/ICD. A semi-annual event, ExFOB invites industry to demonstrate off-the-shelf technologies with potential to address Marine Corps needs. Promising technologies are put into the hands of Marines for extended user evaluation under combat and training conditions. Qualitative and quantitative data collected during ExFOB inform requirements, reduce investment risk, and build Marines' confidence in new capabilities.

ExFOB has taken new capabilities "from concept to combat" in less than a year—twice. In 2010 ExFOB sourced commercial and Marine Corps technologies, trained an infantry company with renewable energy systems, and deployed them to Afghanistan in winter 2010. Marines learned that these capabilities could reduce risk and increase effectiveness at the forward operating edge, such as enabling a foot patrol to operate for three weeks without battery resupply, operating

patrol bases entirely on renewable energy, and dramatically reducing fuel demand at a company outpost. In summer 2011, Marines evaluated ExFOB's hybrid power solutions and efficient air conditioners at Patrol Base Boldak in Afghanistan. This effort tackled our largest ground power user — command and control operations — and enabled a leap forward in our understanding of the military requirement for hybrid power. In 2012, the Marine Corps put this knowledge to work in preparing the Analysis of Alternatives for hybrid energy systems, a critical benchmark in accelerating the acquisition of an entirely new means of powering the force.

Since 2010 ExFOB has:

- Reviewed over 280 technologies
- Evaluated over 75 technologies at ExFOB demonstrations
- Purchased and deployed 11 different technologies to combat in Afghanistan
- Transitioned 4 Technologies to Programs of Record
- Led the requirements development of battlefield hybrid power
- Collaborated with industry to develop high efficiency flexible solar
- Collaborated with industry to develop small unit water purification systems
- Integrated and evaluated fuel saving auxiliary power units for combat logistics vehicles
- Informed $352M in USMC investment and interests within HQMC processes and within the Expeditionary Force Development System.

BASES TO BATTLEFIELD

The Strategy recognized that because Marines live, train, and fight as an expeditionary force, it is essential to foster energy efficient habits at our bases that Marines will translate to the battlefield. At installations, the Marine Corps has made real progress in harnessing renewable energy resources and building more efficient buildings and systems to drive down energy costs. To achieve the Commandant's vision of an energy-efficient, combat effective Marine Corps, every unit and every Marine at our bases and stations, including our civilian Marines and our family members, must make energy a priority. A culture that values resources and increases energy efficiency at our installations will strengthen the readiness and capability of our force.

THE EXPEDITIONARY ENERGY OFFICE (E^2O)

Established in October 2009, the USMC Expeditionary Energy Office (E2O) is responsible for analyzing, developing, and directing Marine Corps energy strategy "in order to optimize expeditionary capabilities across all warfighting functions." E2O, a Director-level office within Headquarters Marine Corps (HQMC) reporting to the Assistant Commandant, works closely with the combat and technology development communities. E2O serves as the Proponent for Expeditionary Energy in the force development process. Additionally, E2O is tasked with advising the Marine Requirements Oversight Council (MROC) on all energy and resource-related requirements, acquisitions, and programmatic decisions. And, in accordance with the National Defense Authorization Act for Fiscal Year 2009, the Secretary of the Navy assigned the E2O responsibilities as the Marine Corps Senior Official for Operational Energy.

PROGRAM INVESTMENTS

Our investments are focused on supporting Marines in combat today, but also on increasing the combat effectiveness of the future force. We are driving energy performance considerations into the acquisition and requirements processes, improving new and legacy systems as well as future upgrades.

We calculate our "Return on Investment" in terms of military capability gained through dramatic savings

in weight and fuel transported. For example, within the FYDP, we expect our investments to improve the energy effectiveness of our Marine Expeditionary Brigades (MEB) by about 9 percent. We estimate that the future MEB, over a 365 day operation, will be able to operate one month longer on the same amount of fuel that it demands today. It will need 208 fewer fuel trucks, thereby saving seven million pounds of fuel per year.

Initial investments in current programs and new areas put us on track to achieve the mission of the Strategy by 2025. They include:

- Accelerating expeditionary energy systems — Solar Portable Alternative Communications Energy System (SPACES) and Ground Renewable Expeditionary Energy Network Systems (GREENS) — to Afghanistan (complete in March 2012), and the Fleet Forces
- Implementing mobile electric power sources to achieve ~22 percent fuel efficiency across the fleet of systems (Army funded development and USMC funded procurement)
- Fielding Enhanced Efficiency Environmental Control Units (E3CU) to achieve ~15-25 percent improved fuel efficiency beginning in 2012, with the next-generation family of ECUs entering service in 2014
- Developing fuel economy improvements for Medium Tactical Vehicle Replacement (MTVR) vehicles, anticipating 15 percent increased efficiency
- Executing ExFOB demonstrations twice a year
- Exercising and training renewable energy systems at events including Steel Knight 2012, Weapons Tactics Instructors Course, and Enhanced Mohave Viper
- Improving expeditionary energy modeling and simulation capability to guide future program investments across the MAGTF
- Training in expeditionary energy ethos for entry-level Marines; developing improved training and education that includes ethos, energy planning, management, production, distribution and storage concepts and practices
- Supporting a Naval Postgraduate School multi-disciplinary student research program in expeditionary energy, beginning fall of 2012

These and future efforts are guided by formal requirements, which include:

- *USMC E2W2 CBA/ICD*
- *Urgent Statement of Needs for Energy-Efficient Lighting for Expeditionary Shelter System*
- *Urgent Statement of Needs for Expeditionary Shelter System Energy-Efficient Insulating Liner*
- *Urgent Statement of Needs for the Solar Portable Alternative Communications Energy System and Ground Renewable Expeditionary Energy Network Systems*
- Energy Efficiency Key Performance Parameter included in Ground-Based Optical Surveillance System (Expeditionary) Capability Development Document
- *MAGTF Expeditionary Hybrid Power System (MEHPS) Analysis of Alternatives*

> "Transforming the way we use energy is essential to rebalance our Corps and prepare it for the future."
>
> *Gen James F. Amos*
> *Commandant, U.S. Marine Corps*

SECTION 7: MARINE CORPS INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE ENTERPRISE (MCISRE)

INTRODUCTION

Marine Corps Intelligence is more than support to operations — it is continuous operations, oriented on global, dynamic threats as well as security cooperation engagements necessary to enable prudent action in pursuit of national interests. The MCISRE is an innovative, operational approach to the intelligence warfighting function, providing timely, reliable, and understandable intelligence information that forms the basis of Marine Corps planning and operations. The multi-domain, collaborative, worldwide construct of the MCISRE provides the crucial operational edge required for Marine Corps forces.

The MCISRE is not driven by the crisis of the moment. Rather, it is a "24/7/365" predictive analysis process with the global reach of operational Marine Expeditionary Force (MEF) Intelligence Centers (MICs) backed by the Marine Corps Intelligence Activity (MCIA) and its connectivity to the Combat Support Agencies (CSAs) and National Intelligence Community (IC). To ensure its viability, Marine Corps Intelligence will continue to evolve and maintain vigilance over a complex, technically sophisticated threat environment by seizing technological opportunities to increase MCISRE capabilities and capacities.

TODAY

The MCISRE supports the Marine Corps intelligence unity of effort across the air, ground, maritime, and cyberspace domains. This strategy synchronizes current USMC intelligence programs, units, and personnel at every echelon across the operating forces and supporting establishment to enable collaboration and sharing of all information and federated intelligence in support of the Marine Air Ground Task Force (MAGTF).

To date, the MCISRE strategy continues implementing an enterprise solution in which all ISR functions, sources, and methods across the total force are leveraged and shared for operational success. A major milestone has been the creation of MICs that enable MEF units to train as they fight by providing analytical and intelligence production support from garrison locations to deployed forces, supporting the Commandant's "Lighten the MAGTF" initiative as well as reducing the required number of forward-deployed personnel. Other major advances include the creation of the Headquarters, Marine Corps Intelligence Department Technology Innovation Division led by the Enterprise Chief Technology Officer, a comprehensive intelligence professionalization program across the Enterprise, and advanced analytic training, methods, and tools

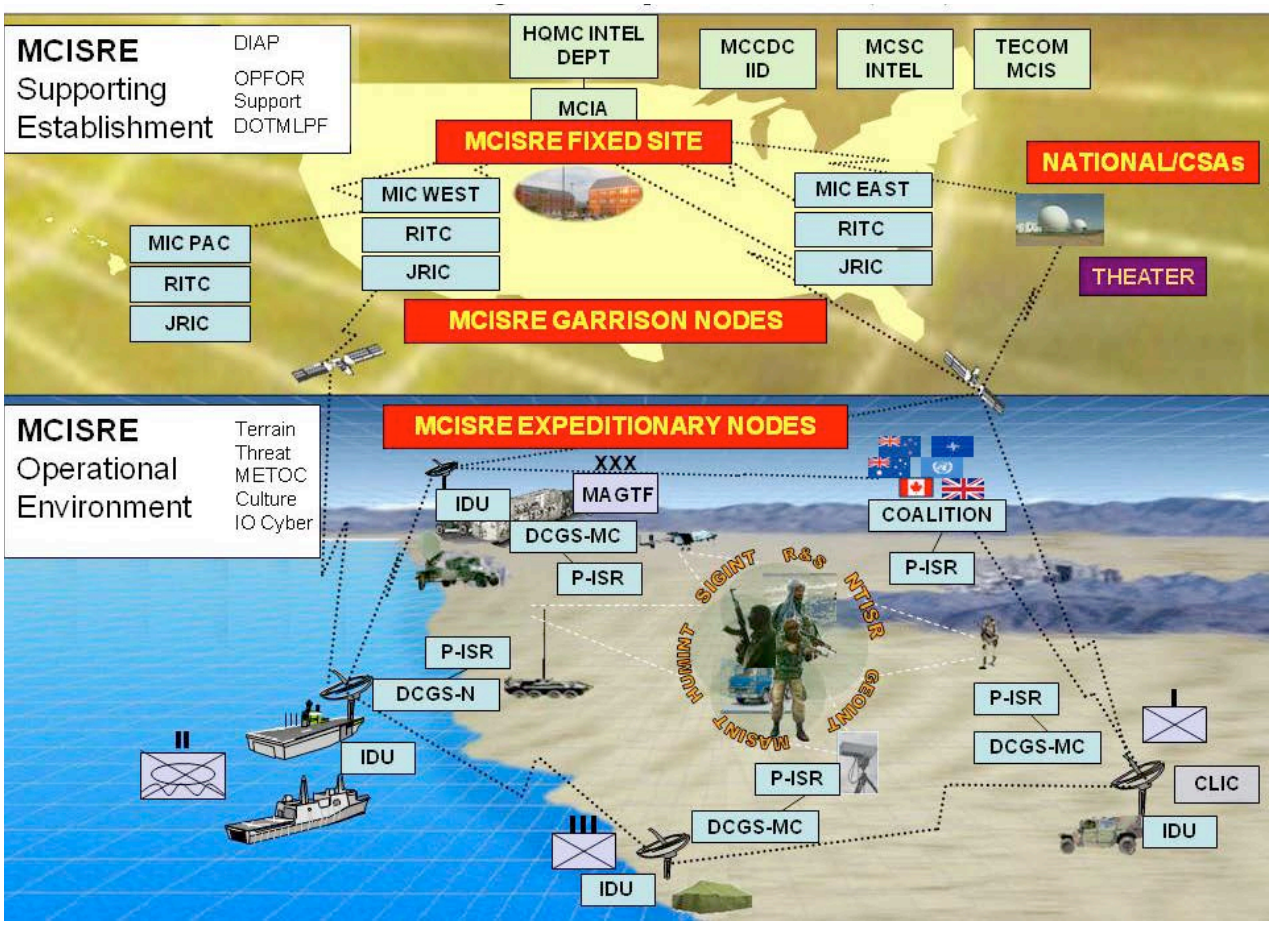
that enable standardized, collaborative predictive analysis across the Enterprise.

These recent advances place ISR capability and capacity at all echelons throughout the total force integrating intelligence information to respond to and reduce uncertainty within complex threat environments. As budgets decrease and global threats multiply, the MCISRE embraces operational flexibility through adaptive responses in operating concepts, doctrine, training, and equipment.

TOMORROW

When fully implemented, the MCISRE will provide each component element access to shared knowledge, data, resources, and expertise from across the enterprise, as well as joint, national, and contributing partner agencies. The ability to "See," "Understand," and "Act" enables a highly trained, networked, and analytically astute intelligence force to enhance decision-making at all echelons, while meeting intelligence quality and information-sharing standards required by Department of Defense (DoD) and National Intelligence Directives.

MCISRE HIGH-LEVEL OPERATIONAL VIEW (OV-1)



MCISRE CONSTRUCT

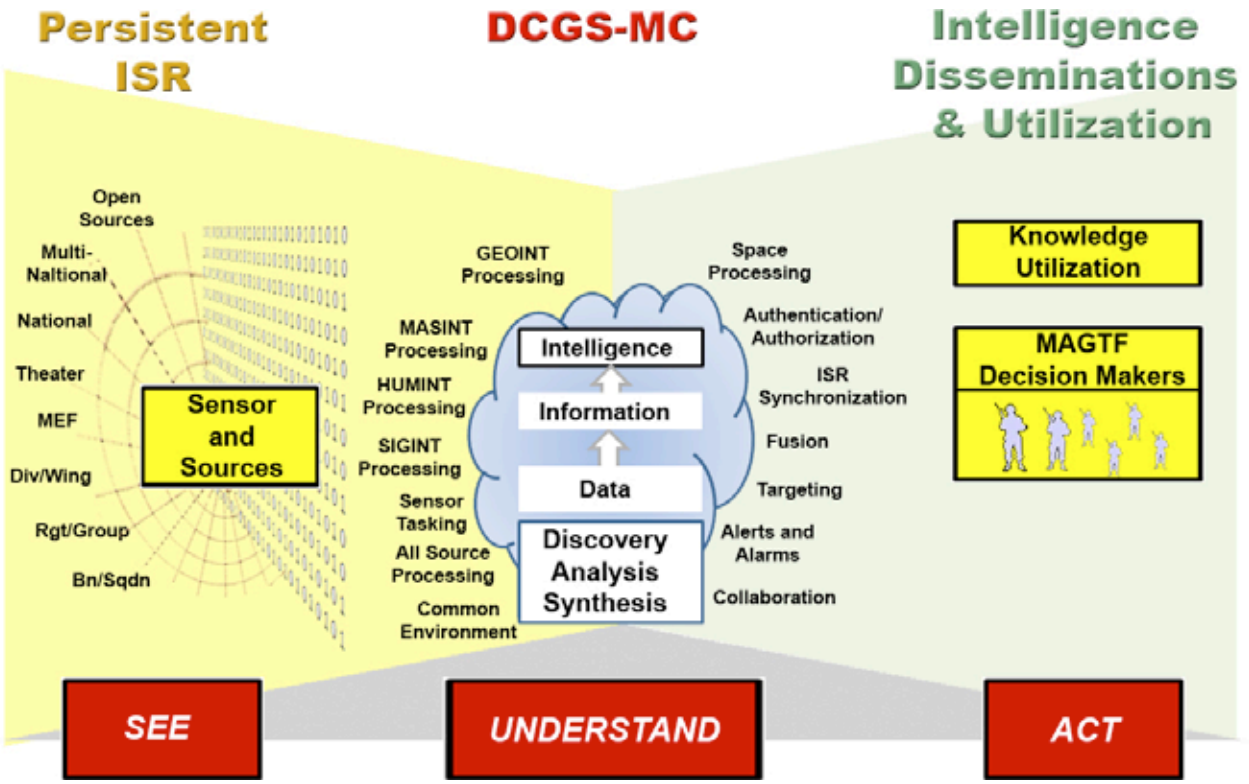
Fixed Site: The MCISRE Fixed Site is managed by the MCIA in Quantico, Virginia. It serves as the Marine Corps principal connection to national agencies and exposes all USMC ISR data to the IC. The fixed site is the primary enterprise data storage and archival site and serves as the primary reach-back site for Garrison Nodes.

Garrison Nodes: MICs are operationalizing garrison capacity in support of operational forces worldwide. They serve as critical reach-back nodes for expeditionary forces. The MICs conduct intelligence planning, analysis, and production in collaboration with MCIA, expeditionary forces, or designated joint force elements. These reach-back sites are located at each of the three MEFs and are capable of supporting forward operations from garrison or deploying to augment tactical, expeditionary nodes.

Expeditionary Nodes: Expeditionary nodes are deployed with the MAGTF. They are scalable, aligned to the mission, and provide intelligence planning, direction, collection, analysis, production, and dissemination of intelligence and combat information to the MAGTF and joint forces.

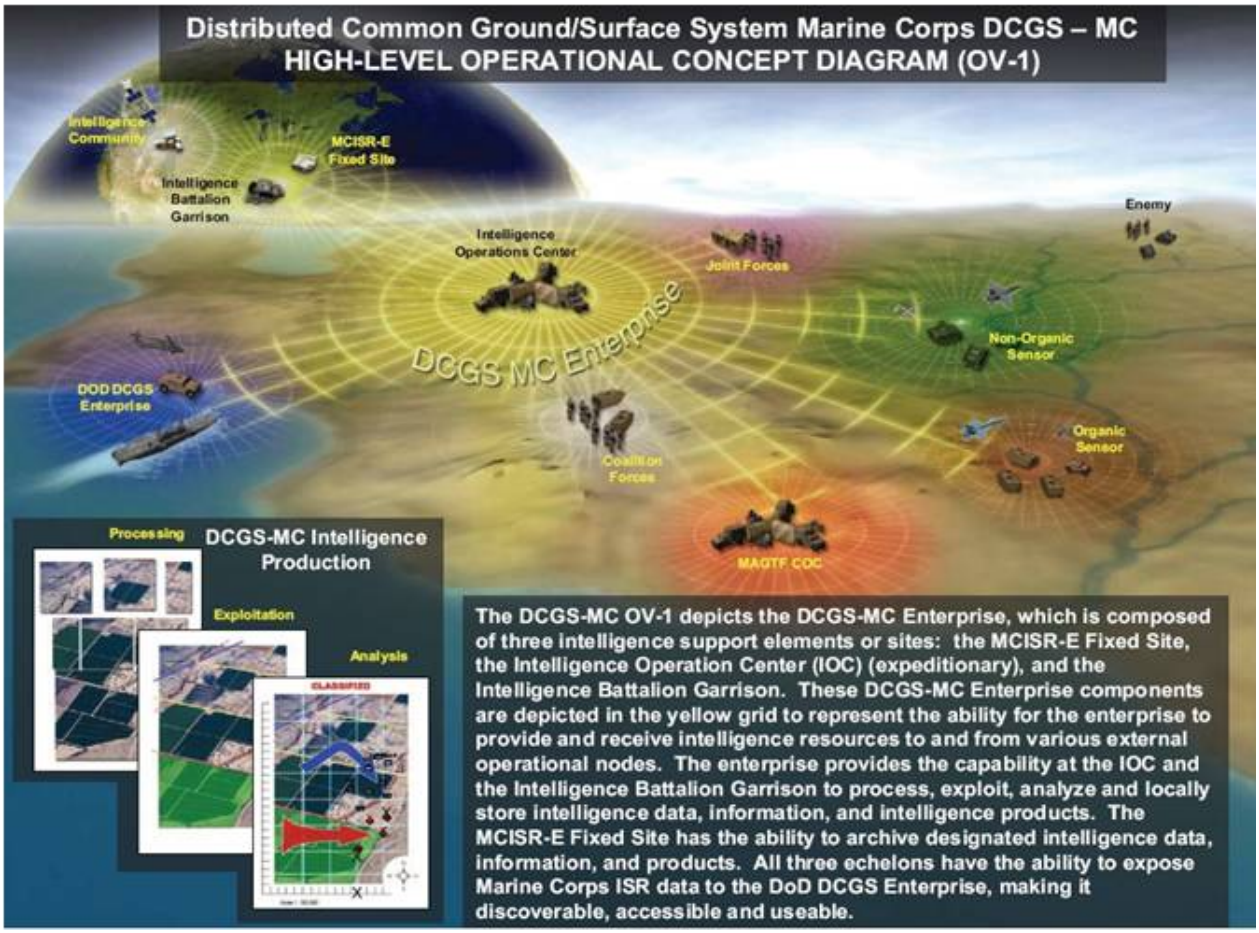
OPERATIONAL OVERVIEW

The MCISRE is built on three core pillars to support MAGTF intelligence requirements in both garrison and deployed environments: (1) Persistent ISR (P-ISR) enables the MAGTF to "See"; (2) Distributed Common Ground System–Marine Corps Enterprise (DCGS-MC) enables intelligence professionals to "Understand"; and (3) Intelligence, Dissemination, and Utilization (IDU) enables the MAGTF to "Act." Individual components of these pillars are further described under Chapter 3, Pillar 5, Section 6: Intelligence, Surveillance, and Reconnaissance Systems and Equipment.



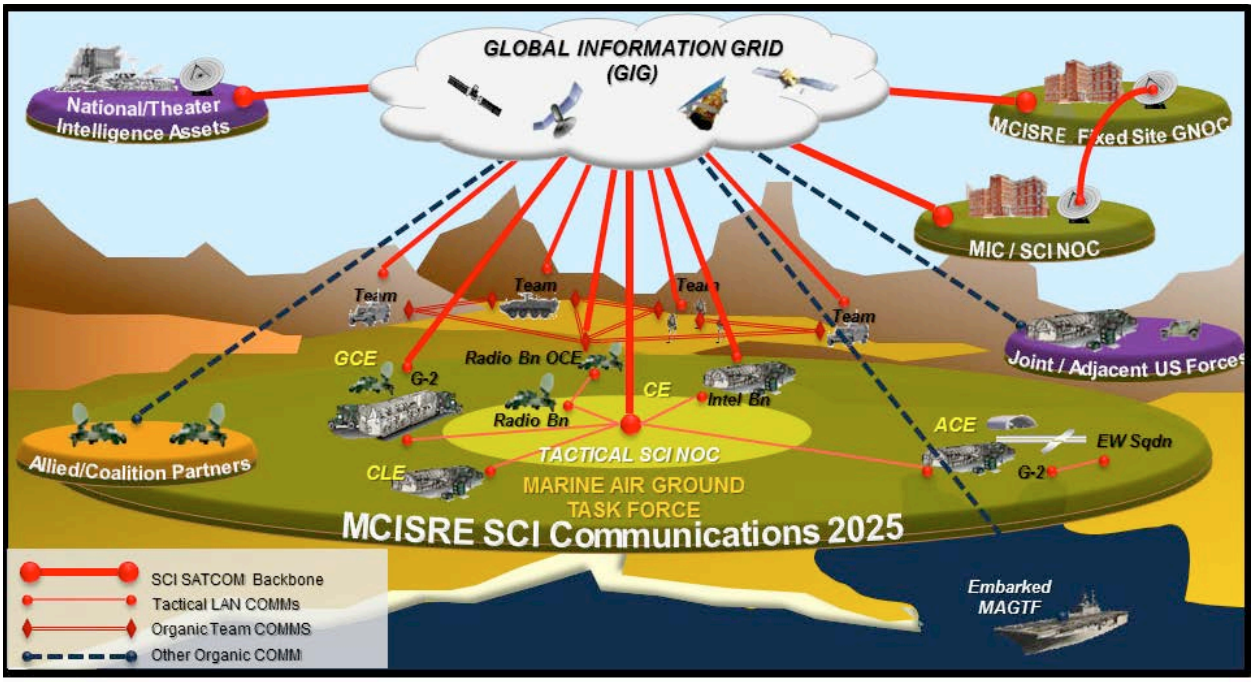
"See" with Persistent-ISR: P-ISR provides the means for intelligence planning, directing, and collecting. Through P-ISR, the Marine Corps is building a holistic intelligence-collection strategy that leverages joint and national ISR assets to augment organic battlefield sensors. The P-ISR strategy synchronizes organic MAGTF ISR collection assets with support from joint and CSA resources to provide leaders at all echelons the ability to use intelligence and combat information.

"Understand" with Distributed Common Ground System–Marine Corps Enterprise (DCGS-MC) Enterprise: DCGS-MC provides the foundation to expose and discover data from a multitude of geospatial intelligence (GEOINT), human intelligence (HUMINT), signals intelligence (SIGINT), and



other sources to provide all-source intelligence production. DCGS-MC is the USMC component of the DoD DCGS Enterprise that performs all aspects of MCISRE data processing, exploitation, exposure, discovery, analysis, and production. DCGS-MC consists of a family of systems that is scalable, modular, and tactically deployable. The DCGS-MC Enterprise comprises the DCGS-MC program of record and several other programs. This critical capability increases the amount and precision of information and intelligence made available to operators, decision-makers and intelligence professionals across and at all echelons of the MAGTF.

"Act" with IDU: The Intelligence Dissemination and Utilization (IDU) concept strives not only to deliver intelligence, but also to integrate it with operations and planning. IDU includes the systems, people, and processes associated with dissemination, integration, use, and evaluation of intelligence. The IDU concept enables precise action and the prudent re-tasking of P-ISR capabilities. IDU is the act of identifying and conveying relevant combat information and intelligence to satisfy MAGTF intelligence requirements. IDU incorporates continuous feedback to ensure the right combat information and intelligence is delivered to the right consumer at the right time. IDU comprises those capabilities associated with the dissemination, integration, evaluation, and feedback steps of the Marine Corps intelligence process.



SECTION 8: EXPEDITIONARY LOGISTICS

INTRODUCTION

Logistics is a fundamental element of MAGTF expeditionary operations. The MAGTF expeditionary logistics capability supports a balanced, multi-capable force that is integral to the strategic direction described in Marine Corps Vision and Strategy 2025. Marine expeditionary forces are self-contained and self-sustained forces that have everything necessary to accomplish the mission – from individual equipment to expeditionary airfields and medical treatment facilities. These forces are structured to meet a wide range of contingency operations and possess the logistics capabilities needed to initiate an operation, sustain forces, and reconstitute for follow-on missions.

MAGTF Expeditionary Logistics includes the information systems, equipment, and processes to train, deploy, employ, and sustain Marine forces across the range of military operations. Enablers include:

- Electronic Maintenance Support System
- Family of Combat Field Feeding Systems
- Family of Field Medical Equipment
- Family of Power and Environmental Control Equipment

These are key for continuous MAGTF operations on a distributed battlefield. The Marine Corps vision of the future requires fundamental changes in the way we provide logistics support to our MAGTFs.

ELECTRONIC MAINTENANCE SUPPORT SYSTEM (EMSS)

DESCRIPTION

The Electronic Maintenance Support System (EMSS) is a key Marine Corps maintenance aid designed to enhance combat service support to Marine Air-Ground Task Forces while deployed or in garrison. EMSS consists of an electronic maintenance device (EMD) and server backbone. The EMD consists of a rugged, lightweight, one-man portable maintenance device that the maintainer can employ at the point of repair to interface with the equipment/system undergoing repair, view technical data, and document maintenance actions.

The EMD is capable of supporting multiple platforms and systems across maintenance communities and provides the necessary technical conduit to enable maintainers to gain access to the Global Information Grid via the EMSS server backbone. EMSS provides a means to archive and download maintenance data collected from the EMD, host maintenance applications, and provides easy access to authoritative technical data with automatic updates as changes occur. EMSS can operate in a connected, disconnected, and wireless mode and provide access to subject matter experts over USMC networks.

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 and Condition Based Maintenance).

OPERATIONAL IMPACT

EMSS provides ground maintenance personnel with an electronic decision support tool capable of wireless connectivity and access to web-based applications and technical data via Global Command Support System – Marine Corps, interactive electronic technical manuals, computer-based training, forms, and files. EMSS will reduce no-evidence of failure, lower cost of maintenance, eliminate paper publications and assist the maintainer in becoming more effective and efficient by providing networked tools and electronic information, enabling sustained performance and readiness of Marine Corps weapon systems anywhere on the battlefield.

PROGRAM STATUS

EMSS has received a full fielding decision for 2141, 2147 and 3521 military occupational specialties (MOSs). Fielding is 100 percent complete. Future efforts will field EMSS to the 11xx, 13xx, 28xx, 59xx MOSs.

Procurement Profile:	FY 13	FY 14
Quantity:	2,000	2,000

Developer/Manufacturer:

Developer/Manufacturer: Special Projects Engineering and Research (SPEAR) Team, Naval Surface Warfare Center, Crane, IN (systems integrator)

FAMILY OF FIELD MEDICAL EQUIPMENT (FFME)

DESCRIPTION

The FFME consists of medical capability sets known as Authorized Medical Allowance Lists (AMALs), Authorized Dental Allowance Lists (ADALs), and medical kits. These sets provide the Marine Air-Ground Task Force commander with the health-care capabilities required to maintain the combat effectiveness of the force and safely stabilize and evacuate casualties from the battlefield. There are 30 different AMALs/ADAL and four medical kits fielded to Marine Corps units. AMALs, ADALs, and medical kits provide Medical Battalions, Dental Battalions, unit medical personnel, and individual Marines and Sailors with the equipment, consumables, and medicine required to treat patients in a field or combat environment.

OPERATIONAL IMPACT

The type of FFME that supports the MAGTF includes forward resuscitative care, shock trauma, and first-responder capability sets that provide life-saving care as far forward on the battlefield as possible. In addition, FFME also includes preventive medicine capability sets designed to prevent the spread of disease. Loss of any of these capabilities 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 (NHRC), verified by subject matter experts, and stocked to reflect current casualty rates and protocols. Planned enhancements to FFME capability sets to improve the quality of health care provided to the warfighter include a Portable Patient Transport Life Support System, Infrascanner for the early detection of subdural hematomas, and the Mobile Anesthesia Delivery Module. Other efforts include joint research and development efforts for tourniquets and hematology analyzers.

PROGRAM STATUS

A review with NHRC, HQMC, CD&I, MCSC, and subject matter experts is conducted on each AMAL, ADAL, and medical kit every four years. The AMAL/ADAL 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 added to the AMAL, ADAL, or medical kit is fielded the year following a review with obsolete equipment being 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, Product Manager, Expeditionary Power Systems. All items are managed as acquisition or abbreviated-acquisition programs, with multiple acquisition programs in progress at any point in time.

Procurement Profile:	FY 13	FY 14
Quantity:	5,400	5,250

Developer/Manufacturer:

Environmental Control Units: Hunter Defense, Geneva, OH

Current Tactical Generators: Dewey Electronics, Oakland, NJ; DRS-Fermont , Bridgeport, CT;

AMMPS 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

Cargo Containers: SeaBox Inc., East Rutherford, NJ; CMCI, Charleston, SC; and Garrett Container Company, Accident, MD

Radio Power Adaptors: IRIS Technology, Irvine CA and Graywacke, Mansfield, OH

Power Supplies: AMETEK, San Diego, CA

Renewable Energy Systems: IRIS Technology, Irvine, CA; UEC Electronics, Hanahan, SC; and LM Engineering, Youngstown, OH

Power Distribution: LEX Products, Shelton, CT

Floodlights: Magnum Products, Berlin, WI

Integrated Trailer, ECU and Generator: Magnum Products, Berlin, WI

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

FAMILY OF COMBAT FIELD FEEDING SYSTEMS

DESCRIPTION

The CFFS team provides material solutions that give the Operating Forces the capability of feeding Marines and Sailors in an expeditionary environment.

The Expeditionary Field Kitchen (EFK) is a rapidly deployable, mobile, and fully self-sustaining kitchen capable of preparing a minimum of 500 meals up to three times per day. The EFK is configured within an 8-by-8 by 20-foot. International Organization for Standardization (ISO) container for transportation and is compatible with current and project Marine Corps transport assets (Medium Tactical Vehicle Replacement (MTVR) with MCC20 container trailer). The kitchen includes an array of food-serving equipment assembled in the expandable ISO container. The transition from shipment mode to operational mode includes placing mobile appliance units into a food preparation and sanitation configuration.

OPERATIONAL IMPACT

The EFK provides a mid-level feeding system to support expeditionary field mess operations 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.

PROGRAM STATUS

The EFK is being fielded in FY 2013 and FY 2014 with expected Full Operational Capability scheduled during FY 2016.

Procurement Profile:	FY 13	FY 14
Quantity:		
EFK	72	34

Developer/Manufacturer:

Sotera Defense Solutions, Easton, MD

SECTION 9: PREPARING FOR TOMORROW'S FIGHT

INTRODUCTION

We are preparing for tomorrow's fight in three critical areas: cyber warfare; special operations; and security cooperation. Modern armed forces cannot conduct high-tempo, effective operations without reliable information and communications networks and assured access to cyberspace and space. The Marine Corps Forces Cyberspace Command is the focus of our organic cyber capabilities and capacities needed to retain speed, precision, and lethality. The Marine Corps Special Operations Command is the Corps contribution to the U.S. Special Operations Command and maintains a shared heritage and strong bond with its parent service as "soldiers from the sea." The Marine Corps Security Cooperation Group capitalizes on our theater security cooperation and partnership activities with allies and partners, providing our leaders with strategic options to shape outcomes, prevent conflicts, strengthen "at-risk" states, and deny enemy safe-havens.

MARINE CORPS SECURITY COOPERATION GROUP (MCSCG)

The Marine Corps Security Cooperation Group (MCSCG) achieved full operational capability in October 2012 as a unique command that consolidates all facets of security cooperation (SC) to include advisor skills, training and assessment expertise, and security assistance program management. MCSCG is commanded by a Marine colonel and has a total of 203 personnel organized into a headquarters staff, instructor group, and regionally aligned coordination, liaison, and assessment teams (CLATs). The command is assigned as a subordinate element of Marine Forces Command (MARFORCOM).

The MCSCG mission is to execute and enable security cooperation programs, training, planning, and activities in order to ensure unity of effort in support of USMC and Regional Marine Component Command (MARFOR) objectives and in coordination with operating forces and MAGTFs. These include assessments, planning support, SC related education and training, and advisory support to ensure the accomplishment of USMC and Regional Marine Force (MARFORs) Component Command SC objectives. MCSCG achieves this by concentrating on these three SC focus areas: Build relationships, facilitate access and building partner capacity (BPC).

MCSCG accomplishes its mission through six principal lines of effort in order to provide integrated security cooperation solutions:

1. Security Assistance/International Programs: Coordinate and manage Security Assistance education and training programs.
2. Foreign Security Force – Capability Based Assessments: Conduct detailed and comprehensive assessments that inform the SC Planning Cycle.
3. Security Cooperation Engagement Plans: Develop long term and enduring Security Cooperation Engagement Plans with our partners and provide deployable planning support elements to the regional MARFORs.
4. Education: Provide resident and deployable instruction to Marine Corps personnel assigned to manage SC activities.
5. Training: Provide SC training to Marines tasked to conduct SC missions.
6. Unity of Effort: SC coordination across USMC and Maritime services.

BUILDING PARTNER CAPACITY (BPC)
- Security Force Assistance (SFA)
- Security Assistance (SA)

BUILDING RELATIONSHIPS
- Key Leader Engagements
- Mil to Mil Talks
- Exchange Programs

FACILITATE ACCESS
- Routine Visits
- Basing / Over Flight