



# PILLAR 5: EQUIPMENT MODERNIZATION



# SECTION 1: EQUIPPING THE MARINE



## FOLLOW-ON TO SHOULDER LAUNCHED MULTI-PURPOSE ASSAULT WEAPON (FOTS)



### DESCRIPTION

The Shoulder Launched Multi-Purpose Assault Weapon (SMAW) II is the materiel solution to the FOTS capability requirement defined in a Capability Development Document. The SMAW II system will consist of a new launcher to replace the existing SMAW Mk153 Mod 0 launcher, and the multi-purpose, fire-from-enclosure (FFE), encased round. The SMAW II launcher will be functionally and physically compatible with existing SMAW legacy rounds.

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

The Launcher will reach Initial Operational Capability (IOC) in FY 2013 and Full Operational Capabil-

ity (FOC) in FY 2016. The Rocket (FFE Round) will reach IOC in FY2014 and FOC in FY 2017.

Procurement Profile:	FY 13	FY 14
Quantity:		
Launchers	0	0
FFE Rounds	0	0

Developer/Manufacturer:

FFE Round: Nammo Talley, Incorporated, Mesa, AZ

Launcher: Raytheon Missiles Systems, Tucson, AZ

## MARINE ENHANCEMENT PROGRAM (MEP)



### DESCRIPTION

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

The MEP thus ensures improvements for the individual Infantryman are identified and quickly transitioned into practical solutions. This goal is achieved through an accelerated acquisition process that takes advantage of commercially available technologies to provide lighter, more improved "infantry items" to the

Marines as quickly as possible. Depending upon when the item is needed, its complexity, risk and cost, it can take from 90 days to two years to test, modify as appropriate, procure and field the item to the Marine.

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

The MEP Working Group includes core representatives from Plans, Policies and Operations, Marine Corps Combat Development and Integration, and Marine Corps Systems Command. Nominations for the MEP initiatives come from Marines via the website, email and the Advocate, or through review of the U.S. Army's Soldiers Enhancement Program for capabilities matching a Marine Corps need. Nominated capabilities must focus on Commercial-Off-The-Shelf or Non-Develop-

mental Items that can be executed quickly. The potential MEP initiatives for 2013 include: Small Arms Collimator, Modular/Scalable Protection System and Enhanced Hearing Protection.

### FAMILY OF IMPROVED LOAD BEARING EQUIPMENT (FILBE)



#### DESCRIPTION

The FILBE comprises load-carrying systems and components. It is designed to provide a stable platform for carrying equipment and supplies needed across the spectrum of individual and unit operations. The FILBE includes the load carriage system for the USMC (USMC Pack system), the holster for the service pistols (USMC Holster), the Corpsman Assault System (CAS), Individual Water Purification System (IWPS), sub-belt, body armor pouch suite, and the USMC Chest Rig.

The USMC Pack system incorporates an external composite frame and is designed to better integrate with body armor systems. The USMC Pack system will be fielded as a system consisting of a main pack, an assault pack, a hydration carrier, and five sustainment pouches of differing sizes.

The USMC Holster is an integrated system using a modular composite holster that is replacing the fielded M-12 holster. The USMC Holster will provide three mounting platforms: the belt platform for garrison duty; the drop-leg platform to support combat dismounted use; and the Pocket Attachment Ladders System (PALS) platform to support a chest-mounted position for tactical operations.

The CAS is a modular four-bag system that will provide rapid access to medical equipment and consumables. It supports first-responder capabilities tailored to the duration and casualty expectations of a full range of combat and non-combat operations. The CAS will integrate with the different USMC body armor systems and will be compatible with the USMC Pack system.

The IWPS is a critical element of the Marine's individual load. It is intended to provide the warfighter with the capability to produce microbiologically safe water from any freshwater source while operating in austere environments. It will reduce waterborne pathogens (viruses, bacteria, and protozoan cysts), sediment, and bad taste and odor. IWPS includes an oxidant and ultra-filter device (pump or in-line filter).

The Sub-Belt provides for attachment of the USMC Holster and pouches via PALS to optimize load distribution and an alternative placement of pouches to the chest rig and body armor systems.

The ILBE pouches are a series of robust, specialized pouches capable of carrying the basic ammunition load required to support and sustain the individual Marine during combat operations. The pouch suite will be a collection of individual pouches geared toward the Marine's load carriage requirements.

The USMC Chest Rig provides the individual Marine the means to carry the fighting load in a modular system. It allows for rapid reconfiguration of the fighting load between fielded Personal Protection Equipment (PPE) or employed in a stand-alone configuration.

### OPERATIONAL IMPACT

The FILBE program provides Marines improved scalability, modularity, and integration with other fielded body armor and individual equipment. It allows Marines to efficiently carry mission loads across the full-spectrum of combat and non-combat operations. The USMC Holster allows Marines better weapons carriage and the ability to rapidly engage

targets from the holster implementing current combat marksmanship techniques. The CAS will enhance first responder capabilities by providing the Corpsman a smaller, lighter, and efficient pack system responsive to the different mission requirements.

### PROGRAM STATUS

The USMC Pack system reached Initial Operational Capability (IOC) in FY 2012 and will reach Full Operational Capability (FOC) in FY 2013. The USMC Holster IOC and FOC were reached in FY 2012.

Procurement Profile:	FY 13	FY 14
Quantity:		
USMC Pack	36,071	0
CAS	10,000	0
IWPS	130,100	14,456
SUB-BELT	269,662	0
POUCH SUITE	TBD	TBD

#### Developer/Manufacturer:

USMC Pack/Sub-belt: Eagle Industries, Fenton, MO

Propper International, Mayaguez, Puerto Rico

CAS: TBD

IWPS: TBD

Pouch Suite: TBD

### FAMILY OF INDIVIDUAL WARFIGHTER EQUIPMENT (IWE) DESCRIPTION

The IWE consists of multiple programs that provide increased warfighter capability, protection, and sustainment in combat environments. There are more than 100 IWE projects within the Family of IWE. Many of these programs were the result of Universal Needs Statement (UNS) requirements or requests from Marine Corps operating forces. The Family of IWE programs include:

Multipurpose Compact Attachable Light (MCAL);



Night Vision Goggle Compatible Light; Enhanced Bed Net System; Handheld Flashlight; High Intensity Miniature Illumination System; Multi-Purpose Bayonet; Mechanical Breachers Kit; Martial Arts Kit; Chaplain's Kit; Field Tarp; ILBE Waterproof Bags; Marine Corps Wire Cutter; Marine Corps Strap Cutter; Entrenching Tools; Collapsible Waterbag; and Engineer Tools

### OPERATIONAL IMPACT

The IWE provides Marines individually issued items that enhance their combat capabilities, have reduced weight, increase energy efficiency and provide a unique capability to the operating forces.

### PROGRAM STATUS

IWE programs are in various phases of the acquisitions process ranging from the Engineering and Manufacturing Development phase to Operations and Support phase.

Procurement Profile:	FY 13	FY 14
Quantity:		
MCAL	9,204	14,336

Developer/Manufacturer:  
Streamlight Eagleville, PA



# SECTION 2: GROUND COMBAT TACTICAL VEHICLES



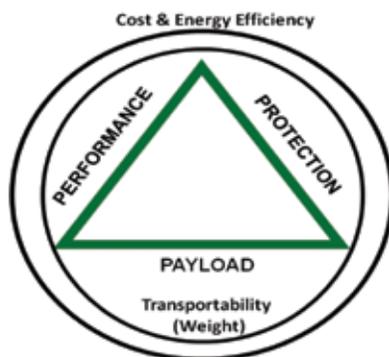
## MOBILITY FOR THE 21ST CENTURY

As the middleweight force, we are light enough to the point of friction quickly, heavy enough to carry the day upon arrival, and capable of operating independent of local infrastructure. Initiated in 2008, the Marine Corps founded the Ground Combat and Tactical Vehicle Strategy. It provides a basis for planning, programming, and budgeting the ground maneuver and mobility capabilities and needs for the Marine Corps as America's Expeditionary Force in Readiness – a balanced, air-ground logistics team. We are forward-deployed and forward-engaged: shaping, training, deterring, and responding to all manner of crises and contingencies. This Strategy guides planning for the right mix of vehicles capable of supporting the spectrum of operations.

## GROUND COMBAT AND TACTICAL VEHICLE STRATEGY (GCTVS)

### DESCRIPTION

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



Four pre-planned Marine Requirements Oversight Council decision points control execution of the strategy to meet the GCTV objective. Future decision points will guide planning to inform Program Objective Memoranda (POMs) 2013, 2014, and 2016 decisions regarding ground mobility investments. The information supporting each decision point will provide cost, effectiveness, and risk information on alternative courses of action relevant to the issues challenging successful fielding of the future fleet.

### OPERATIONAL IMPACT

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

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

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

### Combat Vehicles

The Expeditionary Armored Forces Initial Capability Document (EAF ICD) is a USMC capability-based assessment (CBA) focused on the mounted components of the Ground Combat Element that informed the development of the combat vehicle categories to support the range of military operations. The EAF ICD and the

GCTV Strategy define a triad of heavy, medium, and light combat vehicles to create a balanced force capable of achieving desired ends in the irregular spectrum of conflict while retaining core competencies against traditional threats.

### Tactical Vehicles

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

### PROGRAM STATUS

The GCTV Strategy is currently in its third phase of implementation. Decision Point 1 already has informed POM 2010 investments, and Decision Point 2 did the same for POM 2012 investments. A key output of Decision Point 2 analysis is a planned 10,000 vehicle approved acquisition objective (AAO) reduction by the fourth quarter of calendar year 2013. Fiscal implementation of that reduction will inform POM 2013. The POM 2012 endgame will set the course for key Requests For Information to be addressed during Decision Points 3a and 3b, which will inform POM 2013 and POM 2014 investments, respectively.

The Marine Corps will continue to take a holistic approach to its GCTV Strategy. Actions occurring during FY 2012 included:

- Invested in Assault Amphibious Vehicle upgrades in order to improve seamless ship to shore transition
- Initiated the Amphibious Combat Vehicle program based on a revised set of requirements, key performance parameters, and key system attributes

- Assessed the weight, payload, protection, and cost of the Marine Corps light vehicle fleet and determine the appropriate future mix of Joint Light Tactical Vehicles, High Mobility Multi-purpose Wheeled Vehicles (HMMWV) and inform HMMWV recapitalization and reconstitution efforts
- Examined HMMWV survivability upgrade program to leverage on-hand vehicles

### ASSAULT AMPHIBIOUS VEHICLE (AAV7A1) FAMILY OF VEHICLES UPGRADE



### DESCRIPTION

Initially fielded in 1972, the Assault Amphibious Vehicle (AAV) remains the primary general-support armor personnel carrier (APC) for Marine infantry. The AAV family of vehicles consists of the AAVP7A1 Reliability, Availability, Maintainability/Rebuild to Standard (RAM/RS) APC and two supporting mission-role variants: AAVC7A1 RAM/RS Command and AAVR7A1 RAM/RS Recovery. The AAV7A1 RAM/RS family of vehicles provides ship-to-shore-to-objective mobility as well as direct fire-support with organic weapons.

Programmed to be replaced by a new amphibious combat vehicle, the AAV7A1 RAM/RS family of vehicles will continue to serve the Marine Corps until at least 2030. The AAV7A1 RAM/RS family of vehicles

previously underwent a series of capability enhancements to improve mobility and reliability and to extend the platforms' service lives.

The AAV Upgrade Program will further improve survivability and land and water mobility of the AAV, serving as a capability bridge to fielding and replacement by a new amphibious combat vehicle. This initiative will improve force protection and platform survivability by integrating technically mature upgrades into the existing hull. These upgrades are slated for approximately 392 AAVP7A1 RAM/RS with potential select upgrades applied to the Command and Recovery variants.

#### OPERATIONAL IMPACT

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

#### PROGRAM STATUS

The AAV Upgrade Program will enter the acquisition life cycle at Milestone B during FY 2013 and begin the engineering, manufacturing and development phase. Developmental Testing is planned for late FY 2014 followed by Live Fire Testing in FY 2015. Milestone C, authorizing entrance into the Production and Deployment Phase, is scheduled for late FY 2015 and IOC in late FY 2017.

## JOINT LIGHT TACTICAL VEHICLE (JLTV) FAMILY OF VEHICLES (FOV)

### DESCRIPTION

The JLTV FOV is a joint Army/Marine Corps program to procure the next generation of light tactical vehicles and companion trailers. JLTV objectives are to improve the mobility and payload of the light tactical vehicle fleet, while providing increased survivability through modular protection within the weight constraints of the expeditionary force. The JLTV program will also strive to minimize operations and maintenance costs by maximizing vehicle commonality, increased reliability, and better fuel efficiency, while garnering additional procurement savings through effective competition throughout program execution. JLTVs can be configured to support multiple mission packages, derived from two base vehicle configurations, the 4-door Combat Tactical Vehicle and 2-door Combat Support Vehicle. The commonality of components, maintenance procedures, and training among all configurations will minimize total ownership costs.

### OPERATIONAL IMPACT

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

The joint service program is intended to replace a portion of the Army and Marine Corps High Mobility Multipurpose Wheeled Vehicle (HMMWV) fleet with JLTVs as part of the ground equipment modernization effort. The JLTV's performance characteristics will exceed those of the armored HMMWV Expanded Capability Vehicle (ECV), and will ensure the additional protection and mobility required by the Marine Air Ground Task Force and joint forces. The JLTV FOV will provide the warfighter with increased protection

through the use of scalable armor solutions, while returning light tactical vehicle payloads lost due to the armoring of the HMMWV fleet. The JLTV FOV will also increase warfighter maneuver capacity by providing expeditionary mobility on the modern battlefield. The vehicles will be transportable by CH53 rotary wing aircraft and amphibious/Maritime Prepositioning Squadron ships.

### PROGRAM STATUS

The JLTV CDD was approved by the Joint Requirements Oversight Council in January 2012. The JLTV program is in the Engineering and Manufacturing Development (EMD) phase following a successful Milestone B decision in August 2012. During September 2012 EMD phase contracts were competitively awarded to AM General, Lockheed Martin, and Oshkosh Defense for the design and build of 22 prototypes per vendor. Delivery of the vehicles will be followed by 14 months of government testing. Marine Corps Initial Operating Capability for the JLTV FOV is scheduled for September 2017 with Full Operational Capability occurring in September 2021.

**Developer/Manufacturer:** AM General, Lockheed Martin, and Oshkosh Defense

## AMPHIBIOUS COMBAT VEHICLE (ACV)

### DESCRIPTION

The ACV is a new-start, pre-Major Defense Acquisition Program that will provide an advanced generation, armored, amphibious combat vehicle. The ACV will be the primary means of tactical mobility for the Marine rifle squad — both at sea and ashore. The ACV will autonomously deliver the assault echelon from amphibious shipping at launch distances at or beyond the visual horizon, with speed to enable the rapid buildup ashore, and provide combat-ready Marines at



the objective. The ACV will possess ground mobility and speed similar to the M1A1 during sustained operations ashore and will possess the capability to provide organic, direct fire support to dismounted infantry in the attack. The ACV will protect the force during offensive and defensive operations, providing 360-degree protection against direct fire, indirect fire, mines, and improvised explosive device threats.

The ACV will replace the legacy Amphibious Assault Vehicle that was fielded in 1972 and will be more than 40 years old when ACV is fielded. The ACV will be configured in two mission role variants: Personnel and Command and Control.

### OPERATIONAL IMPACT

The ACV's over-the-horizon launch capability enables the Navy and Marine Corps team to project power from the sea base — and conduct joint forcible entry if required — while providing force protection for the amphibious task force. The ACV will support ship-to-objective maneuver mobility and amphibious maneuver by providing the capability to launch from amphibious ships at operational distances, seamlessly transition between sea and land domains, establish footholds where conditions preclude other types of entry, and enable rapid build-up of combat power before an enemy can react. The ACV will enhance the Ground Combat Element's tactical and opera-

tional mobility with a balanced level of performance, protection and payload. This balance makes the ACV operationally relevant across the full range of military operations. The vehicle will be well protected against the entire range of known and emerging threats while maintaining robust performance requirements in support of the Marine Corps mission profile.

### PROGRAM STATUS

The ACV is in the Material Solution Analysis Phase of the Joint Capabilities Integration and Development System process. An analysis of alternatives (AoA) has been completed. The scope of the AoA included development of life cycle cost estimates for each alternative considering major cost drivers, acquisition and sustainment strategies, and fully burdened cost of energy. The AoA has now paved the way for requirements refinement in an effort to transition the program to the next phase of acquisition development.

## MARINE PERSONNEL CARRIER (MPC)

### DESCRIPTION

The MPC will be effective across the range of military operations during sustained operations ashore and reinforce the assault echelon during forcible-entry operations. Both MPC and the new amphibious combat vehicle will replace the legacy Amphibious Assault Vehicles in the Assault Amphibian (AA) Battalions of Marine divisions. An MPC Company is designed to lift an infantry battalion in conjunction with the infantry's organic wheeled assets. MPC will field a base vehicle (MPC-P) and two supporting mission role variants (MPC-C (command) and MPC-R (recovery)). Two MPC-Ps can transport a reinforced rifle squad. The MPC-C supports mobile battalion command echelon/fire-support coordination center functions and the MPC-R fulfills mobile recovery and maintenance requirements.

### OPERATIONAL IMPACT

The MPC supports expeditionary maneuver warfare and the requirements of the Ground Combat Element maneuver task force by providing a platform that possesses a balance of performance, protection, and payload attributes. The vehicle will be well protected against the full range of known and emerging threats while maintaining robust performance requirements in support of the Marine Corps mission profile (30 percent on road / 70 percent off road). The MPC is effective on land while maneuvering with other wheeled and tracked combat and tactical vehicles, possesses sufficient lethality to protect the vehicle and support dismounted infantry in the attack, and retains sufficient payload to carry the infantry's combat loads, mission-essential equipment, and days of supply. The MPC will meet the many and varied demands of MAGTF operations.

Additionally, the MPC will possess a viable tactical water mobility capability. Although not intended to achieve operational water mobility performance levels (e.g., the over-the-horizon maneuver capability), the MPC will use the sea in the littoral operating area as maneuver space, breach inland water obstacles and thereby increase the MAGTF commander's maneuver, options and the complexity of the threat faced by our enemies.

### PROGRAM STATUS

In June of 2008, the Marine Requirements Oversight Council validated the MPC requirement and approved the solution as an advanced-generation eight-wheeled armored personnel carrier to be integrated into the AA Battalions. The initiative envisions a Materiel Development Decision in FY 2013 or FY 2014, after which the program would enter the acquisition life cycle at Milestone B. The MPC program, once launched, will rely on full and open competition throughout the developmental cycle.

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

### DESCRIPTION

The ECV is the fourth-generation design of the HMMWV and has replaced the aging fleet of baseline A1 variants and some A2 variants. The HMMWV was originally fielded with Marine Corps units in the mid-1980s. Upgrades to the HMMWV ECV include a more powerful and environmentally compliant 6.5L turbo engine, microprocessor controlled engine electronic start system, increased payload (500 pounds), improved corrosion prevention, and access panels to facilitate maintenance.

### OPERATIONAL IMPACT

To successfully accomplish their missions, Marine Air-Ground Task Forces (MAGTFs) require a light tactical vehicle for command and control, troop transport, light cargo and shelter transport, a towed weapons prime mover, and weapons platform throughout all areas of the battlefield or mission area. In addition, 71 Marine Corps component programs use the HMMWV as their prime mover. For units that require specific vehicle configurations, vehicle kits, capable of being installed at the intermediate level of maintenance or below are provided.

### PROGRAM STATUS

Since February 2010, the Marine Corps has procured a limited number of specialty variant ECVs, as the approved acquisition objective for the fleet is being reduced. However, with plans to keep the HMMWV fleet in the Marine Corps inventory until the year 2030, efforts have begun on the HMMWV Sustainment Modification Initiative (SMI) to explore concepts to restore payload, reliability and automotive performance lost due to the increased weight of armoring. An upgraded power train, brakes, suspension, axles, and wheels are among those components and subsystems targeted for

improvement. Four test concepts ranging in capability and cost are scheduled to be designed and built during 2013 for evaluation. Upon conclusion of testing, the Marine Corps will select one SMI concept based upon performance and affordability to go forward with a full and open competition for production. The Marine Corps anticipates fielding the improved HMMWV SMI concept to the Operating Forces beginning in 2016.

Original Developer/Manufacturer:

AM General, South Bend, IN,

HMMWV SMI Vendor: TBD

## MEDIUM TACTICAL VEHICLE REPLACEMENT (MTVR)



### DESCRIPTION

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

MTVR family of vehicles includes a cargo variant (both standard and extended wheel base configura-



tions), dump truck, a wrecker, and a tractor. The dump and wrecker variants maintain maximum commonality with the basic MTVR cargo chassis while performing their unique missions. The tractor variant serves as the prime mover for the Mk 970 refueling trailer and the M777 155mm howitzer. The Navy also uses MTVR vehicles for Naval Construction Battalion (Seabee) operations. The High Mobility Artillery Rocket System (HIMARS) Re-supply vehicle (and associated trailer) is an MTVR variant that was procured as part of the USMC HIMARS program.

The MTVR Armor System (MAS) provides complete 360-degree protection as well as overhead and underbody protection for the crew compartment using Mil-A-46100 High Hard Steel and Metal Composite standards. It is designed for the 22-year service life of the vehicle. The MAS can withstand small-arms fire, improvised explosive devices, and mines. It includes upgraded suspension, air conditioning system, removable armored troop carrier (with ballistic glass), machine gun mounts, and the Marine Corps transparent armor gun shield. The reducible-height configuration of MAS allows for removal of cab roof to accommodate maritime prepositioned shipping space requirements.

## OPERATIONAL IMPACT

More than 1,000 MTVRs have seen service in support of *Operation Iraqi Freedom*, *Operation Enduring Freedom*, and humanitarian-assistance and disaster-relief missions. With its 70 percent off-road mission profile and highly survivable armor package, the MTVR has been heavily used in contingency operations as well as missions in support of humanitarian operations.

## PROGRAM STATUS

The MAS is installed on all MTVR variants deployed to hostile environments. The MTVR Program Office has continued to improve the MAS in response to Urgent Universal Needs Statements. These improvements include the addition of increased underbody blast protection, fuel tank fire-protection kits, and 300-amp alternator kits (e.g., for powering counter-IED technologies), as well as developing the reducible-height MAS configuration. In addition, live-fire testing has resulted in additional MAS upgrades for non-reducible armored MTVRs and for the armored troop carrier. The program office is developing additional safety and crew protection upgrades, such as an automatic fire suppression systems and emergency egress windshields, in response to additional urgent need statements. The program office is also working with the Office of Naval Research under the Future Naval Capability program to develop a fuel economy upgrade kit. The approved acquisition objective of the MTVR is 8,750 vehicles. A follow-on production order was placed at the end of FY 2012 to procure 207 cargo variants and an interservice exchange agreement with the Navy is being executed for 29 Dump Truck variants toward the goal of achieving the desired variant mix within the approved acquisition objective.

Procurement Profile:	FY 13	FY 14
Quantity:	32	0

Developer/Manufacturer:  
Oshkosh Defense Corporation, Oshkosh, WI

## LOGISTICS VEHICLE SYSTEM REPLACEMENT (LVSR)



### DESCRIPTION

The LVSR replaces the current Marine Corps heavy-tactical wheeled vehicle, the Logistics Vehicle System. The LVSR cargo variant transports several cargos, including: bulk liquids; ammunition; standardized containers; bulk, break bulk, and palletized cargo; and bridging equipment. The LVSR has wrecker and tractor variants as well and is being fielded throughout the Marine Air Ground Task Force (MAGTF). The vehicle base design includes factory-installed floor armor and is also designed to accept an add-on armor kit for increased crew protection.

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

### OPERATIONAL IMPACT

To successfully accomplish their mission, MAGTFs require a heavy ground logistics distribution system that is highly mobile, efficient, reliable, and flexible. This system must be capable of operating over in-

creased distances with increased payloads. The LVSR will rapidly distribute all classes of supply, while including a self-loading and unloading capability. The LVSR addresses one of the most significant Marine Corps challenges in Afghanistan, that of getting supplies, equipment, and logistics into the remote areas in which Marines routinely operate.

### PROGRAM STATUS

LVSR achieved Initial Operational Capability in September 2009. The original indefinite delivery/indefinite quantity contract for the LVSR was awarded in May 2006 to Oshkosh Defense, Oshkosh, Wisconsin. The approved acquisition objective of the LVSR is 2,000 vehicles. Full-rate vehicle production began in December 2008 and includes add-on armor "B" kits, in addition to the factory-installed integral "A" kit armor. Add-on armor can be applied in the field by maintenance activities. By the end of FY 2012, the full Approved Acquisition Objective of 2000 vehicles was procured consisting of 1489 Cargo variant, 349 Tractor variants, and 162 Wrecker variants. The Program Office and Logistics Command are conducting Reset and Reconstitution planning which may result in additional vehicle procurements.

Procurement Profile:	FY 13	FY 14
Quantity:		
Cargo variant	0	0
Tractor variant	0	0
Wrecker variant	0	0

Developer/Manufacturer:  
Oshkosh Defense Corporation, Oshkosh, WI

# SECTION 3: AVIATION



## AVIATION STRATEGY FOR THE 21ST CENTURY

Across the spectrum of military operations Marine fixed and rotary-wing aircraft shape the battlespace, often in direct support of Marines on the ground. The MAGTF air-ground combined-arms team has proven unequalled in answering the Nation's call across the spectrum of operations, from humanitarian assistance to delivering ordnance on target during crisis and conflict.

Today, the priority is to replace legacy aircraft, some of which have been flying since the Vietnam War, with far more capable aircraft. The Marine Corps challenge is to remain engaged operationally, sustaining the force while executing a transition strategy for the future. In that regard, the FY 2013 Marine Aviation Plan is a phased plan with a ten year and beyond horizon that incorporates force structure changes while balancing active-duty and reserve components of the total force. Our numerous transition task forces are critical enablers; leading the way as we transition from legacy aircraft to new platforms.

The Marine Corps transition strategy can be separated into two mutually supportive, challenging efforts: sustain the legacy fleet and transition to new aircraft. The Aviation Plan is our roadmap for navigating through these challenges, to ensure our continued capability to carry out all six functions of Marine Aviation: (1) assault support; (2) anti-aircraft warfare; (3) offensive air support; (4) electronic warfare; (5) control of aircraft and missiles; and (6) aerial reconnaissance. This "living" document outlines the Marine Corps multiyear transition plan to a dramatically changed fleet, and provides details for:

- Legacy aircraft modernization and sustainment
- Marine Aviation Command and Control System (MACCS) modernization and sustainment
- Aviation Ground Support (AGS) systems sustainment
- F-35B and F-35C Joint Strike Fighter (JSF) transition
- MV-22B Osprey transition
- H-1 upgrades program (UH-1Y and AH-1Z)
- KC-130J transition and Harvest HAWK system introduction
- CH-53K program and heavy lift requirements
- Unmanned aircraft systems (UAS) programs and upgrades
- Operational support aircraft sustainment and upgrades
- Common Aviation Command and Control System (CAC2S)
- AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR)
- Composite Tracking Network (CTN)

## F-35B SHORT TAKE-OFF VERTICAL LANDING (STOVL) AND C (CARRIER VARIANT) LIGHTNING II JOINT STRIKE FIGHTER (JSF)



### DESCRIPTION

The F-35 JSF is the next generation strike weapons system designed to meet an advanced threat, while improving lethality, survivability, and supportability. It will be the cornerstone of a multi-mission joint force possessing improved mission flexibility and unprecedented effectiveness to engage and destroy both air and ground threats. The F-35 is designed to participate in a wide variety of operations from routine, recurring military activities, to Major Theater War, and peace-keeping operations.

The F-35 was developed using a complete analysis of legacy aircraft shortfalls, emerging threats, and consideration of future operating locations. This approach led to an aircraft design that incorporates advanced stealth characteristics and a powerful sensor suite that provides superior awareness to the pilot and ensures increased survivability and lethality in all environments.

The F-35 has an autonomous capability to strike a broad range of moving or fixed targets, either day or night and in adverse weather conditions. These targets include air and ground threats, as well as enemy surface units at sea and anti-ship or land attack cruise missiles. The F-35 can complete the entire kill chain

without reliance on external sources by using fused information from its onboard systems and/or other F-35s. This capability allows shortened engagement times, less exposure to threats, and retains the element of surprise. Together these elements allow the pilot to control the tactical environment using proactive tactics. When operating in a less restrictive environment the F-35 provides sensor data to Marine Air-Ground Task Force (MAGTF) command and control agencies to enable intelligence collection and targeting across the force.

The F-35 brings unprecedented lethality, survivability, and maintainability never possible in legacy fighter attack aircraft. These attributes have been designed into the aircraft from the beginning of the process and ensure flexibility to counter even more sophisticated threats as they emerge.

### OPERATIONAL IMPACT

The F-35 JSF brings strategic agility, operational flexibility and tactical supremacy to the MAGTF. The F-35B variant unites fifth generation stealth, precision weapons and multi-spectral sensors with expeditionary responsiveness of a Short Take-off and Vertical Landing (STOVL) fighter-attack platform. The F-35B will replace AV-8B, F/A-18A/C/D, and EA-6B aircraft. Having a single aircraft capable of performing all these missions decreases logistical requirements and increases operational effectiveness.

The F-35 is a force-multiplier for the MAGTF commander. It can operate without degradation within anti-access or highly contested airspace providing an advanced engagement capability that is not possible with legacy aircraft. The F-35 fuses information from all of its sensors and displays it to the pilot on large panoramic cockpit displays. This comprehensive and intuitive display provides complete situation awareness to the pilot, showing the location and status of both enemy and friendly forces.

The ability for the F-35 to accomplish the entire kill chain independently minimizes reliance on other

support aircraft. This reduces logistical requirements, further decreasing strains on MAGTF resources.

**PROGRAM STATUS**

Highlights of the F-35B program:

- May 12: VMFAT-501 begins F-35B flight operations at Eglin Air Force Base
- September 12: 948 total F-35B flights
- October 2011: L Class ship trials
- Estimated Initial Operational Capability (IOC): Late 2015
- Estimated Full Operational Capability (FOC): TBD

Procurement Profile:	FY 13	FY 14
Quantity:	6	6

Developer/Manufacturer:  
Lockheed Martin, Fort Worth, TX

ability, and supportability compared to those of legacy aircraft.

The VMFAT-501 “Warlords,” the first Marine Corps JSF STOVL training squadron, stood up on April 2, 2010 as part of the JSF Integrated Training Center at Eglin AFB, FL. VMFAT-501 will be assigned to 2d Marine Aircraft Wing for operational control and administrative control, but the Warlords will maintain a command training relationship and co-location with the U.S. Air Force 33rd Fighter Wing. Students are expected to start training in 2012. The Operational Test and Evaluation (OT&E) detachment stands up at Edwards AFB during 2014 and commences Block 2.0 OT&E in 2015.

The Marine Corps will acquire 357 STOVL aircraft and 63 CV aircraft for a total of 420 JSFs. Once the F-35 enters service, the Marine Corps will begin retirement of AV-8Bs and F/A-18A-Ds. All legacy tactical strike aircraft platforms should be retired by 2031.

**JOINT STRIKE FIGHTER (JSF) TRANSITION PLAN**



The Marine Corps will employ the F-35B and F-35C to support the six functions of Marine Corps aviation. This remarkable breadth of employment will allow the Marine Corps to decrease its tactical aviation inventory while increasing aircraft lethality, surviv-

**MARINE AIR GROUND TASK FORCE ELECTRONIC WARFARE (MAGTF EW)**

**DESCRIPTION**

The USMC’s EA-6B Prowler will be decommissioned by the end of FY 2019. This “sundown” plan, combined with rapidly changing dynamics in the electromagnetic operating environment (EMOE), compels an evolutionary approach to the complex problem set of electromagnetic spectrum (EMS) control.

The Marine Corps will address its electronic warfare requirements through a concept known as MAGTF EW, an integrated family-of-systems approach of distributed, platform-agnostic attack and receive capabilities. Far from a compromise plan for the retirement of the EA-6B, the MAGTF EW strategy will unite air, land, and sea-based EMS-dependent technologies to ensure collaborative, efficient, and effective control of the EMS.



Future growth of MAGTF EW will allow for the progressive inclusion of technologies and capabilities from other Services and commercial vendors. At present, the following capabilities comprise the MAGTF EW portfolio in development:

- **Intrepid Tiger II (IT-2)** – A modular, commercial-off-the-shelf based Electronic Warfare pod designed to address irregular warfare targets. The V(1) variant will fly aboard tactical aircraft (TACAIR) assets, the V(2) will fly aboard unmanned aerial systems (UAS), and the V(3) will fly aboard rotary-wing airframes.
- **Software Reprogrammable Payload (SRP)** – A small-format, software-definable, multi-channel, radio-reprogrammable digital technology for radio relay, network management/monitoring, internet

routing, and dynamic bandwidth allocation. SRP contributes to MAGTF EW by providing robust EMS maneuver and adaptability in stressed EMOEs.

- **EW Service Architecture (EWSA)** – An extensible data exchange and hardware protocol intended to connect EW/SIGINT airborne nodes to ground Operators, Cyber/EW Control Cells (C/EWCCs), and other air EW nodes. EWSA will provide “on-demand EW fires” in operational conditions under C/EWCC control, and will unite Air EW, Ground EW and SIGINT via an adaptive network with multiple waveforms. Additionally, EWSA will also provide basic digital interoperability between air platforms.

## OPERATIONAL IMPACT

The Marine Corps operational dependence upon the EMS is increasing in amount, type, density, and complexity. Active pursuit of the MAGTF EW strategy allows the Corps an opportunity to replace the low-density, platform-centric EA-6B Prowler capability with a scalable, organic, adaptable and cost-effective system-of-systems for EMS control. This system will be equally applicable across the range of military operations. When fully realized, MAGTF EW will constitute an improvement over current capabilities.

## PROGRAM STATUS

The Marine Requirements Oversight Council approved the *MAGTF EW Information Systems Initial Capabilities Document* (IS ICD) in September 2012. MAGTF EW is a distinct program of record and is funded against the FY 2014 FYDP.

IT-2 Block 0 is currently deployed in early operational capability status on AV-8B Harriers. IT-2 Block 1 will incorporate EW Support / surveillance capabilities, and the later Block X variant will move beyond irregular warfare targets to include counter-radar capabilities.

SRP has demonstrated capability in live-flight tests aboard the KC-130J. The next spiral of SRP may incorporate TTNT waveform capability, Link-16, and advanced NSA-accredited crypto capabilities.

EWSA functionality has been demonstrated in tactical demonstrations, with more demonstrations of increasing complexity planned. EWSA is being shared with Army EW, and interested commercial vendors, to pursue new capabilities from a normalized frame of reference and to encourage its adoption by other agencies.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:  
Various (NAVAIR, NRL, and prospective commercial vendors)

## MV-22B OSPREY



## DESCRIPTION

The V-22 Osprey tilt-rotor aircraft, the only such operational military aircraft in the world, is an advanced-technology vertical/short takeoff and landing (VSTOL), multi-purpose tactical aircraft that is replacing the current fleet of Vietnam-era CH-46E & CH-53D helicopters. The V-22 is a multi-mission aircraft designed for use by the Marine Corps, Navy, and Air Force.

The USMC variant, the MV-22B, joins the Joint High-Speed Vessel (JHSV) and Landing Craft Air Cushion (LCAC) as the sea-basing connectors necessary to execute expeditionary maneuver warfare. Specific missions for the MV-22B include expeditionary assault from land or sea, medium-lift assault support, aerial delivery, tactical recovery of aircraft and personnel, air evacuation, and rapid insertion and extraction.

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

**OPERATIONAL IMPACT**

The MV-22B is becoming the cornerstone of Marine Corps assault support capability, with the speed, endurance, and survivability needed to fight and win on tomorrow’s battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for expeditionary forces. The Osprey has a 325-nautical mile combat radius, can cruise at 262 knots, and is capable of carrying 24 combat-equipped Marines or a 12,500-pound external load. With a 2,100 nautical-mile single-aerial refueling range, the aircraft also has a strategic self-deployment capability.

**PROGRAM STATUS**

The Marine Corps transition from the CH-46E to the MV-22B continues at the approximate rate of 3 Ospreys delivered per month and two squadrons transitioned per year. Production of the MV-22B is based on a block production strategy, which is designed to provide continual lifecycle and capability improvements throughout the lifetime of the platform.

Block A aircraft are designed to serve as non-deployable training aircraft, and they include software enhancements, a nacelle reconfiguration, and additional reliability and maintainability improvements compared to the original aircraft design. As of January 2013, 30 Block A aircraft have been delivered and are primarily in service at Marine Corps Air Station New River.

Block B aircraft are the deployable configuration of the MV-22B Osprey. These aircraft provide improvements in effectiveness and maintainability for operators and maintainers, including improved access to the nacelle for inspection purposes and substantial reliability and maintenance improvements across the entire platform. As of January 2013, 108 Block B aircraft have been delivered to the fleet.

Block C aircraft incorporate mission enhancements and increased operational capability. Enhancements include weather radar, a forward-firing

ALE-47 dispenser, improved hover coupled features, an improved environmental conditioning system, and a troop commander situational awareness station. As of January 2013, 31 Block C aircraft have been delivered to the fleet.

Procurement Profile:	FY 13	FY 14
Quantity:		
Block C	17	18

Developer/Manufacturer:  
 Bell Helicopter Textron, Fort Worth, TX  
 The Boeing Company, Philadelphia, PA

**H-1 UPGRADES  
 (UH-1Y VENOM/AH-1Z VIPER)**



**DESCRIPTION**

The H-1 program (UH-1Y/AH-1Z) replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with new four-bladed, all-composite rotor systems coupled with a sophisticated, fully integrated, state-of-the-art cockpit in both aircraft models. The UH-1Y and AH-1Z also incorporate new performance-matched transmissions, a four-bladed tail rotor, and upgraded landing gear. Additionally, structural modifications to the AH-1Z provide the aircraft six weapons stations, two more than on the AH-1W. The advanced cockpit common to both aircraft reduces



operator workload, improves situational awareness, and provides growth potential for future weapons and joint interoperability. The cockpit integrates onboard planning, communications, digital fire control, self-contained navigation, day/night targeting and weapons systems in mirror-imaged crew stations.

### OPERATIONAL IMPACT

The UH-1Y Venom (commonly referred to as “Yankee”) and the AH-1Z Viper (referred to as “Zulu”) share 85 percent of replaceable components, which significantly benefit Marine Air Ground Task Force maintainability and supportability. The H-1 program effectively mitigates the narrow power margins of the UH-1N and the high aircrew workloads of the AH-1W while enhancing tactical capability, operational effectiveness and sustainability of our attack and utility helicopter fleet.

UH-1Ns are being rapidly pushed towards retirement due to airframe and engine fatigue, which routinely force aircrew into flight regimes with narrow power margins and little room for error. Continued implementation of the “Yankee Forward” strategy — an effort to accelerate replacement of UH-1Ns with the new UH-1Ys as quickly as possible — is a top Marine Corps aviation priority. Significant operational demands, aircraft attrition, and the current shortfall of attack and utility helicopters, has forged the Marine Corps “build new” strategy for its UH-1Y and AH-1Z

fleet. The success of this effort will more rapidly reduce the current USMC Attack helicopter shortfall.

The UH-1Y conducted its first deployment with the 13th Marine Expeditionary Unit (MEU) in 2009 and has been deployed to Afghanistan since October 2009. Transition to the UH-1Y is complete at Marine Air Group (MAG)-39 and has shifted to MAG-29 on the East Coast. The first AH-1Z deployment was with the 11th MEU in November 2011. Of note, this is the first time the AH-1Z and UH-1Y have deployed alongside each other; fully exploiting the benefits of 85 percent commonality.

### PROGRAM STATUS

Ninety-two production aircraft (66 UH-1Ys and 26 AH-1Zs) were delivered through the end of Oct 2012. The UH-1Y achieved Initial Operational Capability in August 2008 and the AH-1Z achieved IOC in February 2011. The H-1 Upgrades overall procurement objective is 160 UH-1Ys and 189 AH-1Zs.

Procurement Profile:	FY 13	FY 14
Quantity:	28	27

#### Developer/Manufacturer:

Airframe: Bell Helicopter Textron Inc., Fort Worth, TX  
Integrated Cockpit: Northrop Grumman,  
Woodland Hills, CA

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

### KC-130J

#### DESCRIPTION

The KC-130J is a versatile four-engine tactical air-to-air refueling and assault-support aircraft which provides the only organic long-range, fixed-wing assault-support capability to the Marine Corps. The KC-130J features increased efficiency over legacy KC-130 variants. The Rolls Royce AE 2100D3 propulsion system with Dowty R391 advanced-technology six-bladed



propeller system provides thirty percent more thrust, twenty four percent faster time to climb and twenty percent better fuel efficiency.

A state-of-the-art flight station and integrated advanced defensive system enables fewer aircrew to perform the same missions. Other improvements include an advanced cargo ramp and door, capable of operating at airspeeds up to two hundred fifty knots and an improved air-to-air refueling system which enables increased fuel transfer rates without requiring the installation of the fuselage fuel tank. All active component legacy KC-130 aircraft have been replaced with KC-130Js. Once reserve component squadrons have transitioned to the KC-130J, the Marine Corps will have one type, model, and series of this versatile aircraft.

#### OPERATIONAL IMPACT

The KC-130J provides tactical air-to-air refueling for fixed-wing, rotary-wing, and tilt-rotor aircraft; rapid ground refueling of aircraft or tactical vehicles; assault air transport of air-landed or air-delivered (parachute) personnel and equipment; airborne command and control augmentation; pathfinder support; battlefield illumination; tactical aero-medical evacuation; and is an enabler for tactical recovery of aircraft and personnel.

In response to an Urgent Universal Need, the Marine Corps has acquired a bolt-on/bolt-off Multi-Sensor Imagery Reconnaissance (MIR)/Weapon Mission Kit for KC-130J aircraft. This kit, known as Har-

vest HAWK, rapidly reconfigures the KC-130J aircraft into a platform capable of performing persistent MIR, targeting and delivery of precision fires using Hellfire as well as Griffin and Viper strike stand-off precision guided munitions. The KC-130J brings increased capability and mission flexibility to combat planning and operations.

#### PROGRAM STATUS

The Marine Corps KC-130J requirement (active and reserve) is seventy-nine aircraft. The KC-130J is currently in production with forty-six aircraft delivered. A forty-seventh KC-130J is on contract for delivery by May 30, 2014. Initial Operational Capability was achieved in February 2005.

Procurement Profile:	FY 13	FY 14
Quantity:	0	2

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

#### CH-53K HEAVY LIFT HELICOPTER DESCRIPTION

The CH-53K is critical to sea-based expeditionary maneuver warfare for the Marine Corps of 2025. As Marine Air Ground Task Force (MAGTF) equipment gets heavier, demand for vertical heavy lift assets increase. Heavier equipment, such as up-armored High Mobility Multipurpose Wheeled Vehicles (HMMWVs), the future Joint Light Tactical Vehicle (JLTV), and the Light Armored Vehicle (LAV) eliminate medium-lift assets as lift platforms and increase demand for the heavy-lift CH-53K.

The CH-53K provides the Marine Corps with the ability to transport 36,000 pounds of external cargo and is specifically designed to lift 27,000 pounds of cargo up to 110 nautical miles in support of future warfighting concepts. The CH-53K generates nearly



three times the external lift capability of the CH-53E under the same environmental conditions, while fitting within the same shipboard footprint. Performance improvements enable vertical insertion of dual-slung up-armored HMMWVs, the JLTV, LAV, or three individually tailored resupply loads delivered to three different operating bases using the independent triple-hook external load system.

The CH-53K provides unparalleled lift and range capability under high-temperature and high-altitude austere conditions, similar to those found in Afghanistan, thereby greatly expanding the commander's operational reach. It is the only fully "marinized" helicopter that can lift 100 percent of MAGTF equipment from amphibious shipping to inland objectives. The CH-53K, having more lift capacity than present day heavy-lift assets, becomes the aircraft of choice to minimize the MAGTF footprint while maximizing operational efficiency.

Major system improvements include more powerful engines, an increased lift capability, an enhanced drive train, advanced composite rotor blades, a modern digital cockpit, improved external and internal cargo handling systems, and increased survivability and force-protection measures. The CH-53K is designed to greatly improve heavy-lift performance and survivability while reducing shipboard logistical requirements, operating costs, and direct maintenance man hours-per-flight hour compared to the CH-53E.

### OPERATIONAL IMPACT

CH-53K maintainability and reliability enhancements decrease recurring operating costs significantly, while improving aircraft efficiency and operational effectiveness compared with the CH-53E. Survivability and force protection enhancements significantly increase protection for aircrew and passengers. The CH-53K will transport three independent external loads tailored to individual unit requirements and provide the critical logistics air bridge to facilitate sea-based and distributed operations.

### PROGRAM STATUS

In 2012, the CH-53K program made significant progress. The Ground Test Vehicle (GTV) completed assembly in Oct at Sikorsky's Florida Assembly and Flight Operations (FAFO) facility in West Palm Beach, Florida, and entered the system validation test phase. The GTV will undergo tests ensuring safe operations of the Engineering Development Model (EDM) flight vehicles. All four EDM's are currently in assembly at FAFO, EDM-1 is 40 percent complete and will deliver in Oct 2013, and will conduct the first CH-53K flight in 2014. Milestone C is scheduled for FY16 with Initial Operating Capability scheduled for the first quarter of fiscal year 2019.

General Electric (GE) continues to make great strides with the CH-53K GE38 engine. A new engine, specifically developed to power the CH-53K, the GE38 has achieved over 2400 successful test hours and recently completed the rigorous 1000 hour Missionized Durability Testing. The GE38 (required to produce 7500 shaft-horse-power) has sustained 7760 SHP and peaked at a robust 8300 SHP.

The first Marine Maintenance Detachment and Integrated Test Team arrived at FAFO in January 2013. The maintenance detachments will function as work center supervisors, training other Marines on the CH-53K, and assisting in logistics support development. These Marines will also assist in the assembly of all four EDM's and support subsequent tests. The

Integrated Test Team will work hand-in-hand with their Sikorsky counterparts in test plan development and implementation.

The Foreign Military Sales (FMS) potential of this aircraft continues to grow. Milestone C marks the first opportunity for the U.S. Government to establish FMS contracts with foreign governments, with several countries already expressing interest in the CH-53K.

Developer/Manufacturer:

Sikorsky Aircraft Corporation (SAC), United Technologies Corporation (UTC), Stratford, CT

## UNMANNED AIRCRAFT SYSTEMS (UAS)



### DESCRIPTION

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

Air Ground Task Force (MAGTF).

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

USMC UAS Requirements include the following:

- Marine Corps Tactical UAS (MCTUAS): RQ-7B Shadow
- Small Tactical UAS (STUAS): RQ-21A Integrator
- Small UAS (SUAS): RQ-11B Raven



### OPERATIONAL IMPACT

The Marine Expeditionary Force (MEF) and Marine Expeditionary Brigade (MEB) are supported by MCTUAS, the largest of our UAS systems, the RQ-7B Shadow UAS. The first system was deployed with VMU-1 to support *Operation Iraqi Freedom* in September 2007. Employing MCTUAS electro-optical and infrared (EO/IR) sensors, communications relay payloads, and laser designators, commanders on the ground have increased visual and communications access within their areas of responsibility. The VMU squadron supports the Marine Corps Ground Combat Element (GCE) with route reconnaissance, fires integration and force-protection prior to, during, and post-mission.

### PROGRAM STATUS

RQ-7B Shadow programmed upgrades include tactical common data link (TCDL), UHF capability,

weaponization, and a universal ground control station (UGCS) that will increase joint interoperability with other aircraft, UAS, and data systems. Procured as a near-term solution to shortfalls in the older RQ-2B program, the RQ-7B provides multiple capabilities to the MAGTF. Upgrades to the RQ-7B are planned through FY 2018. These upgrades will support the transition to a larger (Group-4) UAS that will provide the MAGTF with persistent ISR, strike, and electronic warfare, on board a faster UAS platform with an improved endurance and payload capacity while maintaining an expeditionary footprint.

#### OPERATIONAL IMPACT: SUAS

The Marine Expeditionary Unit (MEU) and the infantry regiment are supported by STUAS, with supporting personnel sourced as detachments from the VMU. The STUAS system is designed to provide reconnaissance, communications relay, and target acquisition in support of the GCE. The Marine Corps currently provides STUAS support to the GCE with the Aerosonde UAS under an ISR services contract with AAI.

#### PROGRAM STATUS: RQ-21A INTEGRATOR

The Marine Corps selected the RQ-21A Integrator (produced by Insitu Inc.) as a government-owned material solution for the STUAS requirement. As 32 RQ-21 systems are fielded, they will replace the remaining contract intelligence, surveillance and reconnaissance (ISR) services in *Operation Enduring Freedom*. The RQ-21A program is in Engineering Manufacturing and Development and is planned for IOC in the fourth quarter of FY 2013.

#### PROGRAM STATUS: RQ-11B RAVEN

The RQ-11B Raven is produced by AeroVironment Inc. In 2008, 439 RQ-11 systems began replacing the older RQ-14 Dragon Eye. The Marine Corps has also purchased limited quantities of the smaller Wasp III

UAS (also produced by AeroVironment Inc.) to perform a user assessment for a potential add to the UAS family of systems.

#### OTHER UAS APPLICATIONS

**Cargo UAS** has been added as an initiative to enhance our assault support capabilities and to reduce the vulnerability of ground logistics supporting Marines stationed at remote combat outposts. Two Lockheed Martin/Kaman KMAX Cargo UAS deployed to OEF in 2011 in support of a Military User Assessment with the VMU as a government-owned/contractor-operated cargo UAS service. The MUA will help to form future CONOPS and a formal program of record that will provide the MAGTF with a UAS system capable of cycling five tons of supplies between a support base and remote outpost within a 24-hour period.

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

Procurement Profile:	FY 13	FY 14
Quantity:		
RQ-7B (MCTUAS)	0	0
RQ-21 (STUAS)	4	4
RQ-11 (SUAS)	13	0

## AN/TPS 80 GROUND/AIR TASK ORIENTED RADAR (G/ATOR)



### DESCRIPTION

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

Increment I is the air defense/surveillance radar (AD/SR). It will provide real-time radar measurement data to the Tactical Air Operations Center through the TYQ-23(V)4 Tactical Air Operations Module, TSQ-269 Mobile Tactical Air Operations Module, Composite Tracking Network, and the Common Aviation Command and Control System. Increment I can also function as a short-range air-defense radar and will provide fire control quality data to a future ground-based air-defense weapon system. Increment II will fill the ground weapons locating radar requirement and will provide a counter-battery and target acquisition capability for the Ground Combat Element. Increment IV is the expeditionary airport surveillance radar and will provide air traffic control capabilities to the MAGTF.

G/ATOR consists of three major subsystems: the radar equipment group (REG), the communications equipment group (CEG), and the power equipment group (PEG). The REG is integrated radar and trailer combination towed behind a medium-tactical vehicle replacement (MTVR) platform. The CEG is a palletized communications and radar control systems transported by the armored M1151A1 High-Mobility Multi-purpose Wheeled Vehicle. The PEG is a pallet assembly containing a tactical generator, cables, and ancillary equipment transported in the bed of the MTVR.

The REG, CEG, and PEG without prime movers are considered mission-essential equipment and are rapidly deployable via heavy-lift helicopters, tilt-rotor aircraft, KC-130s, or ground vehicles during the initial stages of operations. This system can augment sea-based air-defense sensors and command and control capabilities. G/ATOR will provide naval and joint forces with an expeditionary radar and cruise missile detection capability that extends landward battlespace coverage. When fully fielded, the diverse capabilities of G/ATOR and the many warfighting functions it supports will make it a highly valued asset to the MAGTF commander.

### OPERATIONAL IMPACT

G/ATOR's expeditionary, multi-role capabilities represent the next generation of ground radar technology. This radar will provide crucial enhancements to warfighting capabilities for Marine Corps and joint force commanders, as it possesses greater range, accuracy and detection capabilities against current and emerging threats. The G/ATOR will also provide increased mobility, reliability and improved situational awareness with the ability to act as the landward extension of seabased defenses and enable strikes against inland targets.

### PROGRAM STATUS

The AN/TPS-80 G/ATOR was designated an ACAT IC by the Under Secretary of Defense for Acqui-

sition, Technology and Logistics in October 2011. The Department of the Navy will continue to be the lead acquisition agency for G/ATOR. G/ATOR is currently in Developmental Testing (DT); the final phase of DT and the Operational Assessment for G/ATOR will be conducted in Yuma, AZ in early 2013, with a Milestone C Low-Rate Initial Production Decision to follow. The approved acquisition objective is 57 units.

Procurement Profile:	FY 13	FY 14
Quantity:	2	0

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

### P-19A AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) VEHICLE REPLACEMENT (P-19R)



#### DESCRIPTION

The P-19A Aircraft Rescue Fire Fighting (ARFF) Vehicle Replacement is intended to replace the A/S32 P-19A Aircraft Crash and Structure Fire Fighting Truck, known as the P-19A. The P-19A was introduced into service in 1984, with an intended service life of 12 years but has been in service in excess of 28 years. The primary mission of the P-19R is fighting aircraft fires and crew rescue. The secondary mission of the vehicle

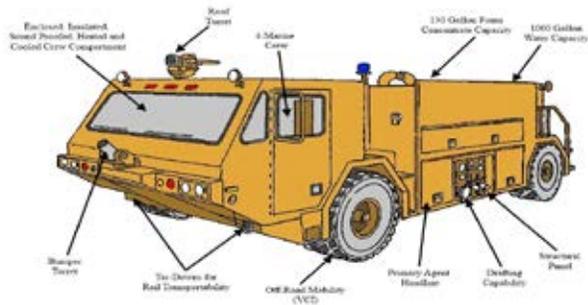
is to fight other types of fires, such as brush and structural fires. The P-19A is currently the Marine Corps sole tactical Aircraft Fire Fighting Vehicle capable of supporting both garrison and expeditionary air fields.

The P-19R ARFF vehicle will meet both the 2012 National Fire Protection Association - 414 standards and the expeditionary firefighting and aircraft rescue requirements of the Marine Corps. This program will replace P-19A's at both Operational Force (OPFOR) units and Garrison Mobile Equipment (GME) Air Facilities located at the Bases and Stations. The legacy P-19A cannot be economically upgraded to meet the mandated in the 2012 NFPA 414 standards. Most predominantly absent on the P-19A's are various crew safety-related upgrades including; three-point crew restraints, anti-lock braking, and roll-over warnings.

The P-19R will have functional capabilities to minimize the consequences of fire and emergency incidents including: fire suppression and extinguishment on aircraft and structures, crew extrication and rescue. Capabilities include the ability to seat a four person crew and meeting USMC mobility and transportability requirements at base and stations, and forward operation bases. It is equipped with fire suppression compounds and extinguishing agents, handheld extinguishers, and specialized rescue tools to extinguish aircraft fires, protect rescue personnel, cool explosive ordnance, extract aircrews, and successfully accomplish each rescue mission.

#### OPERATIONAL IMPACT

The P-19R can be transported to the area of operations via strategic airlift (C-17 (Threshold) and C-5 (Objective) aircraft) or surface platforms. The legacy P-19A fleet is undergoing critical readiness issues stemming from reliability and electrical failures due to the age of the vehicles. The current P-19A is a maintenance challenge to station and wing mechanics, resulting in less than 75 percent material readiness levels.



### PROGRAM STATUS

The P-19R Capabilities Development Document has been signed by Deputy Commandant, Combat Development & Integration, and the program should receive its Milestone B decision in the second Quarter of FY 2013. The original Authorized Acquisition Objective (AAO) of 180 vehicles is anticipated to be reduced to 164 based on the MIP trade space review. The Solicitation has been approved, RFP released and proposals are due in December of 2012. The P-19R Initial Operational Capability (IOC) is planned for FY 2016. IOC is achieved when one MWSS has received a complete issue of P-19Rs; the assigned mechanics and crews have received initial training at the operator/crew, field and sustainment levels; and sufficient repair parts are in place to support operations. The Marine Corps is pursuing P-19R Full Operating Capability by FY 2020 to meet the AAO.

Procurement Profile:	FY 13	FY 14
Quantity:		
Test Articles	2	0
Low Rate Initial Production	0	4

Developer/Manufacturer: TBD



## SECTION 4: FIRE SUPPORT



## EXPEDITIONARY FIRE SUPPORT SYSTEM (EFSS)



### DESCRIPTION

The EFSS is the third and final system of the land-based fire-support triad that also includes the Lightweight 155mm Howitzer and the High-Mobility Artillery Rocket System (HIMARS). Accompanying Marine Air-Ground Task Forces (MAGTFs) in all types of expeditionary operations, EFSS is the primary indirect fire-support system for the vertical assault element of the ship-to-objective maneuver force. As such, the EFSS mortar section — the M327 120mm Rifled Towed Mortar, the Prime Mover Weapon, the Prime Mover Trailer, and Ammunition Trailer with a basic load of ammunition — and its crew are internally transportable by two CH-53 helicopters or two MV-22B tilt-rotor aircraft, and possess the greatest possible range and flexibility of employment for operational maneuver from the sea.

### OPERATIONAL IMPACT

The EFSS expands the maneuver commander's spectrum of fire-support options and capabilities to successfully engage a spectrum of point and area targets, including motorized, light armored, and dismounted personnel; command and control systems; and indirect-fire systems. The EFSS affords the MAGTF commander increased flexibility in tailoring his fire-support systems to support the scheme of maneuver.

EFSS-supported units are particularly well suited for missions requiring speed, tactical agility, and vertical transportability. The EFSS design and configuration ensure that its tactical mobility, in the air and on the ground, is equal to that of the force supported.

### PROGRAM STATUS

The EFSS Program is in production and deployment. Full rate production was approved in June 2008 and Initial Operational Capability was achieved in March 2009, when one artillery regiment received six EFSS. The EFSS Approved Acquisition Objective (AAO) has been procured and will complete delivery and fielding during 2013.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:  
General Dynamics Ordnance and Tactical Systems,  
St. Petersburg, FL

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

### DESCRIPTION

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

### OPERATIONAL IMPACT

TLDHS enables operators to conduct target acquisition and target hand-off to fire support agencies using existing and planned communications equipment

to support maneuver units of the Marine Air Ground Task Force. Operators are able to accurately determine and designate a target's location and then digitally transmit (hand-off) these target data to supporting-arms elements. The TLDHS employs a laser designator for precision-guided munitions and laser spot trackers, and it also generates accurate coordinates for global positioning system-guided weapons, including Excalibur rounds and Joint Direct Attack Munitions. The primary operators are forward air controllers (FAC) and joint terminal attack controller (JTAC) for CAS, forward observers (FO) and joint forward observers for field artillery missions, firepower control teams of the air and naval gunfire liaison companies, Marine Corps Special Operations Command, and the supporting training commands.

TLDHS is interoperable with several systems, including AFATDS, Naval Fire Control System, Joint Tactical Common Operational Picture Workstation Gateway, Common Laser Range Finder, and the PRC-117 Tactical Combat Net Radio. Tactical air control parties often employ TLDHS in conjunction with intelligence, surveillance and reconnaissance assets.

**PROGRAM STATUS**

TLDHS Block II is in sustainment. TLDHS Block II provides extended CAS functionality for the FAC/JTAC via enhanced digital interfaces with the A-10, F-16, AV-8B and F/A-18 aircraft. Block II also adds the ability for FOs to conduct indirect-fire missions via the AFATDS. Block II hardware is being refreshed in FY 2013 and FY 2014.

Procurement Profile:	FY 13	FY 14
Quantity:		
(Block II hardware refresh)	200	200

Developer/Manufacturer:  
 Stauder Technologies, Saint Peters, MO

**MISSION PAYLOAD MODULE–NON-LETHAL WEAPONS SYSTEM (MPM-NLWS)**



**DESCRIPTION**

The Mission Payload Module–Non-Lethal Weapons System (MPM-NLWS) will allow Marine Corps forces to conduct counter-personnel missions by providing a new vehicle-mounted, non-lethal tube-launched munitions delivery system capable of suppressing human targets (i.e., the ability to degrade one or more functions or capabilities of a human target to render it ineffective) with minimal risk of significant injury. The MPM-NLWS will mount onto the Marine Corps Transparent Gun Shield (MCTAGS) on the High-Mobility, Multipurpose, Wheeled Vehicle (HMMWV) or its replacement. Increment One of the MPM-NLWS will deliver an enhanced pyrotechnic (thermobaric effect) munition from a tube-launch system. Future increments of the MPM-NLWS may include mounting the system to additional vehicles (e.g., Light Armored Vehicle (LAV), Medium Tactical Vehicle Replacement, Joint Light Tactical Vehicle, and naval vessels. In addition, future increments may include additional munitions — including obscuration, illumination, and other rounds — to provide a more flexible response capability and enable the system to address future emerging capability gaps.

### OPERATIONAL IMPACT

Compared to current non-lethal weapon systems, the MPM-NLWS will provide significant improvements primarily in range, standoff distance, duration of effects, area coverage, volume of fire, and non-lethal effects. MPM-NLWS munitions will be designed to suppress personnel with minimal risk of significant injury and can be selectively employed in order to provide a graduated response option to scenarios involving crowd control, access or area denial, convoy operations, or engaging a lethal threat.

### PROGRAM STATUS

The program is currently in the Engineering, Manufacturing and Development (EMD) phase of the acquisition process, after receiving a favorable Milestone B decision and approval to release the Request for Proposal for an EMD contract in May 2012. The Marine Corps will award a single contract to conduct the EMD Phase. During this phase, the contractor will complete the system design and provide systems (launchers and munitions) to the Government for formal system qualification testing. A Milestone C decision is planned for the first quarter of FY 2015. Based on a favorable MS C decision, a contract option will be awarded to the EMD contractor for the production of the Low-Rate Initial Production quantities for the Initial Operational Test and Evaluation. Operational testing is planned for the first quarter of FY 2015. Initial Operational Capability is planned for fourth quarter of FY 2016 and Full Operational Capability for fourth quarter of FY 2017. The approved acquisition objective is 312 systems.

Procurement Profile: FY 12      FY 13

Quantity:                    0                    0

Developer/Manufacturer: TBD

### OCULAR INTERRUPTION SYSTEM

#### DESCRIPTION



The Ocular Interruption (OI) system will be a permanent replacement for the GLARE MOUT 532P-M and LA-9/P Green Beam Laser Systems that were fielded to Marine Corps units in the U.S. Central Command area of responsibility in response to

an Urgent Universal Need Statement. The OI system will be a weapons-mounted or hand-held dazzling laser employed during Escalation of Force (EoF) situations and will provide a non-lethal, force protection/force application capability to warn and visually suppress targeted personnel at ranges from 10 to 500 meters. The device will use bright light to cause visual field obscuration in targeted individuals and will mitigate the risk of inadvertent lasing through the use of automatic engineering controls. It is intended to be used as a visual warning capability in order to gain the attention of personnel approaching lethal force-authorized zones, with an inherent capability to visually suppress as the range from operator to target decreases.

### OPERATIONAL IMPACT

The OI device will allow personnel engaged in combat, stability and security, and force protection operations to employ an intense visual cueing device to hail and warn personnel and vehicle operators at safe standoff distances. This will provide commanders with a complementary, non-lethal hailing and warning capability in support of their EoF missions and protect Marines against the threat of a vehicle-borne improvised explosive device.

## PROGRAM STATUS

The program is scheduled to achieve a Milestone C decision in FY 2014. Initial Operational Test and Evaluation is to occur in FY 2014. A total of 1,482 systems will be procured, with Initial Operational Capability scheduled for FY 2015 and Full Operational Capability in FY 2019.

Procurement Profile:	FY 12	FY 13
Quantity:	0	0

Developer/Manufacturer: TBD

## DISABLE POINT TARGET (DPT)

### DESCRIPTION

Operational Forces have an immediate requirement for additional capabilities that provide Marines with increased standoff when employing non-lethal (NL) effects. There is a critical need to accurately incapacitate individuals while simultaneously keeping Marines beyond the reach of a hostile threat. Currently fielded individual personnel incapacitation systems require Marines to be in close proximity to the threat. This close range places the Marine at greater risk and compresses the Marine's decision and response times. The next generation non-lethal un-tethered personnel incapacitation system will permit Marines to acquire targets during both day and night operations at a range greater than 21 feet.

### OPERATIONAL IMPACT

Operating forces continue to need additional capabilities that increase options along the use of force continuum. The capability to engage and incapacitate point targets with precision accuracy during crowd control/human shield situations or when facing ambiguous threats is critical. The requirement to incapacitate individuals refers to the capability of dissuading or rendering individuals incapable of acting or react-

ing, so that friendly forces may gain control, minimize interference, and/or accomplish a task. The next generation NL Untethered Personnel Incapacitation System will provide this capability at distances greater than current systems. Recent Science and Technology experimentation and research have demonstrated practical, available opportunities in this area. This system will increase the standoff distance between the Marine and a potential threat, allowing more time to determine intent and to escalate force, if necessary.

## PROGRAM STATUS

An Analysis of Alternatives is being conducted on the Disable Point Target program.

Procurement Profile:	FY 12	FY 13
Quantity:	0	0

Developer/Manufacturer: TBD

## DoD NON-LETHAL WEAPONS PROGRAM

The Department of Defense (DoD) Non-Lethal Weapons Program stimulates and coordinates non-lethal weapons requirements of the U.S. Armed Services and is the resource sponsor for the development of technologies to satisfy these requirements. The Commandant of the U.S. Marine Corps serves as the DOD Non-Lethal Weapons Executive Agent.

Located at Marine Corps Base Quantico, the Joint Non-Lethal Weapons Directorate serves as the Executive Agent's day-to-day management office. The U.S. Armed Services work with the Combatant Commanders and the Executive Agent through a joint process to identify requirements and coordinate the planning, programming and funding of non-lethal weapons research, development, and test and evaluation. These efforts directly support the services and U.S. Special Operations Command in their efforts to procure and

field a wide range of non-lethal capabilities. All legal and arms-compliance reviews must be completed before fielding of non-lethal weapons.

In the 15 years since the program's inception, the need for non-lethal weapons, devices and munitions — both counter-personnel and counter-materiel — continues to grow in support of the multitude of DOD missions being conducted around the world. Whether engaged in counterterrorism, stability and reconstruction, or anti-piracy operations, U.S. forces will need to be adept at employing less-than-lethal techniques to complement lethal capabilities and to have the means to satisfy a critical tenet common to counterinsurgency operations: protection of the population.

In recent years, the program has achieved success in fielding programs of record and responding to urgent operational needs. An array of non-lethal weapons, devices, and munitions are available now for conducting checkpoint operations, convoys, area security, patrols, detainee operations, crowd control, maritime operations, and other missions. Today's non-lethal inventory includes acoustic hailing devices, vehicle arresting devices, electric stun guns, vehicle launched grenades, multi-sensory munitions, optical distracters and voice translation devices — all proven technologies that provide reversible effects and applicability across the spectrum of irregular operations.

Non-lethal weapons are explicitly designed and primarily employed to incapacitate personnel or materiel while minimizing fatalities, significant injury to

personnel, and undesired damage to property in the target area or environment. Non-lethal capabilities have matured from the days of riot batons and rubber bullets, but much more needs to be done to increase versatility and further expand the range of non-lethal options available to U.S. forces. Several new or improved capabilities are currently advancing through the development process including the:

- Vehicle Arresting Device
- Improved Acoustic Hailing Device
- 12-Gauge Extended Range Marking Munition
- Mission Payload Module
- Airburst Non-Lethal Munition
- Improved Flash-Bang Grenade
- Green Laser Interdiction System
- Ocular Interruption Device

Additionally, extensive research has been conducted on next generation non-lethal directed energy capabilities that show great promise in providing vehicle stopping, vessel stopping, and area denial applications at extended ranges. The DOD Non-Lethal Weapons Program is committed to supporting the U.S. Armed Services with a wide range of proven non-lethal weapons, munitions and devices to support full spectrum operations in complex environments.

For more information, please visit: <http://jnlwp.defense.gov>.

## 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.

## MARINE AIR GROUND TASK FORCE (MAGTF) COMMAND AND CONTROL VISION STATEMENT

MAGTF C2 focuses on the simple premise of getting the right information to the right Marine at the right time in order to make timely and informed decisions. MAGTF C2 is leader-centric, network-enabled and is intended to support the continuous decision making cycle of commanders at every level to ensure they are positioned to best plan, direct, coordinate, and control. Networked C2 capabilities will connect all elements of the MAGTF with joint forces and mission partners to create unparalleled information sharing and collaboration, adaptive organizations, and a greater unity of effort via synchronization and integration of force elements at the lowest levels. Commanders will have the ability to command and control disaggregated forces across great distances to allow Enhanced MAGTF Operations (EMO) down to the company level and below. MAGTF C2 has, at its core, the following ideas:

- Commander/Leader Centric
- Network enabled
- Information Assurance
- Collaborative, shared situational understanding
- Performed by all echelons
- Can be performed anywhere in the operational environment

### MAGTF C2 ROADMAP

The Deputy Commandant of Combat Development and Integration has published the C2 Roadmap for FY 2013 (<https://ehqmc.usmc.mil/org/mccdc/default.aspx>). The MAGTF C2 Roadmap document is capability-based and informs resource and acquisition oversight requirements. This yearly update to the FY12 baseline expands upon the previous annual version and evolves in coordination with other Capability Portfolio Management (CPM) and other elements of HQMC to provide a streamlined foundation for informed de-

cision making. The FY13 edition of the MAGTF C2 Roadmap will address FY13-FY21 proceedings, focusing on the Program Objective Memorandum (POM)-15 investment cycle.

## MARINE CORPS INFORMATION ENTERPRISE (MCIENT) STRATEGY

The Marine Corps Information Enterprise is defined as the Marine Corps information resources, assets, services, and processes required to achieve decision and execution superiority, and to share information and knowledge across the Marine Corps and with mission partners. The MCIENT Strategy prepares the Marine Corps for the future by establishing a vision for the Marine Corps as an *information enterprise* and by providing the objectives necessary for enhancing Service core competencies, defeating adversaries, supporting allies and mission partners, and performing the Marine Corps legislated role.

### VISION

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

### STRATEGY

Achieving the vision requires the development of improved mobile, seamless, and secure communications and IT services across the Marine Corps Information Enterprise. Communications and services with these characteristics facilitate collaboration, coordinated actions, and instant or near real-time access to mission-

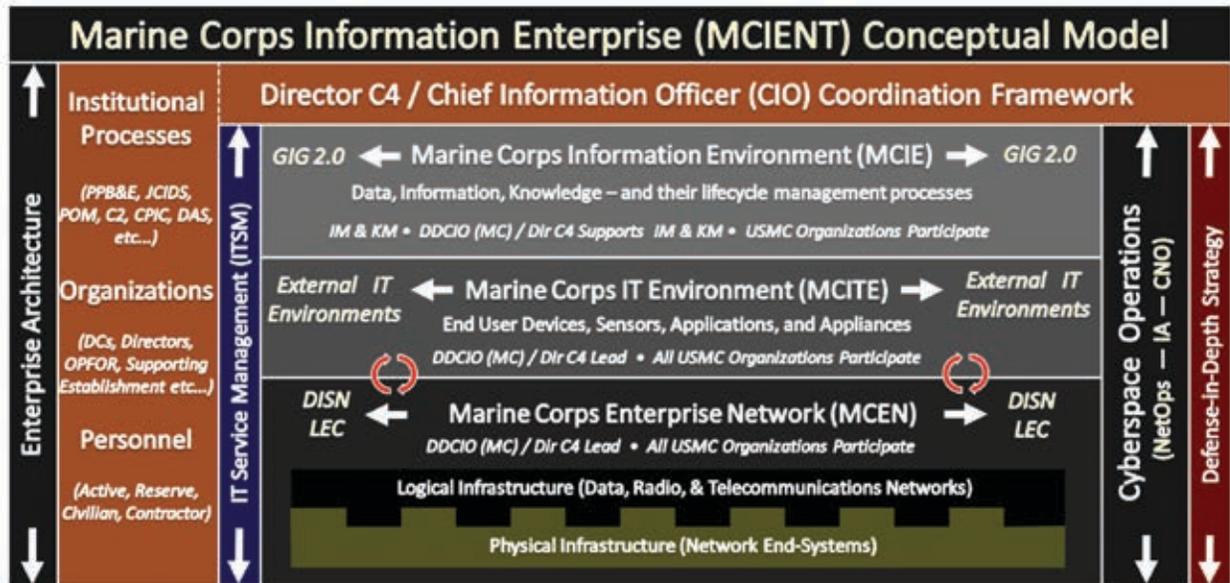


Figure 1. MCIENT Model

critical data, information, and knowledge. To evolve the Corps into a knowledge-based force that achieves decision and execution superiority in traditional warfighting domains, cyberspace, and business mission areas, investments in core MCIENT components are crucial.

Investments for the Marine Corps Enterprise Network (MCEN) and the Marine Corps Information Technology Environment (MCITE) will focus on ensuring their ability to more effectively deliver, display, and manage data, information, and knowledge across the enterprise.

These investments will emphasize better ways for rapidly infusing emerging technologies that enhance command and control, extend the reach of forward-deployed forces, and improve organizational and tactical agility. Investments will be planned from the perspective of ensuring bandwidth-limited Marines and mission partners have improved access to mission-critical data, information, and knowledge, wherever and whenever needed, and in an understandable format. Enterprise investments will also focus on workforce education, training, and professionalization programs. Such initiatives will be designed to ensure Marines, Civilian Marines,

and support contractors know how to use improved enterprise governance tools, policies, and technological capabilities to create advantage in a dynamic strategic landscape.

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

### CHARACTERISTICS

**Focused on Deployed Forces:** In the future, the location of MAGTF or other USMC forward-deployed forces will vary depending upon the operating context, mission, and the extent to which Marines interact with internal and external organizations and individual mission partners. The Marine Corps will leverage multi-capable MAGTFs with Marines who are trained

to perform a multitude of tasks in varying operational contexts and at differing levels of unit aggregation. MCIENT components will support these Marines by facilitating the development and fielding of mobile, seamless, and secure communications and IT services that provide robust collaboration tools and instant or near real-time access to mission-critical data, information, and knowledge.

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

**Grounded in Effective Governance:** Effective governance implies a mechanism for ensuring that Marine Corps Information Enterprise capabilities are developed and fielded in support of Marine Corps goals and objectives. Figure 1, the MCIENT model provides a framework for integrating common functional requirements, applicable to MCIENT components, into Information Enterprise objectives. The *Marine Corps Information Enterprise Strategy* is thus the mechanism for leveraging the MCIENT model to influence enterprise Force Development priorities. The MCIENT strategy provides the Marine Corps single, top-level Information Enterprise objectives used to inform future capability decisions, supporting plans, concepts, and programming initiatives.

**Secure and Seamless Marine Corps Information Environment:** MCIENT core components enhance the ability for Marines and their mission partners to access the information they need in austere and distributed environments, whenever they need it. The Director C4/Chief Information Officer of the Marine Corps will coordinate with other organizations

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

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

## MCIENT CORE COMPONENTS

**Marine Corps Enterprise Network:** At the foundation of the MCIENT model shown in Figure 3 is the Marine Corps Enterprise Network. The MCEN is defined as the Marine Corps network-of-networks and approved interconnected network segments, which comprise people, processes, logical and physical infrastructure, architecture, topology, and cyberspace operations.

The MCEN is characterized at a minimum to include: (1) Programs of Record (PORs) that provide network services to forward-deployed forces (e.g., the Support Wide Area Network) operating in the USMC.mil namespace and in USMC-routable Internet Protocol (IP) addresses; and (2) Operations and Maintenance (O&M) functions that provision data transportation, enterprise information technology (IT), network services, and boundary defense (e.g., Marine Corps Enterprise IT Services).

Additionally, the MCEN's physical infrastructure is analogous to the Defense Information System Network (DISN) and the Local Exchange Carrier (LEC), as it enables the Marine Corps Information Technology Environment and the flow of data, information, and knowledge across the Marine Corps Information Environment. The MCEN interfaces with external networks to provide information and resource sharing, as well as access to external services.

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

**Marine Corps Information Technology Environment:** Figure 3 depicts the MCEN and MCITE as inextricably linked, but distinguishes the MCITE layer

as that encompassing all Marine Corps-owned and -operated IT — including those technologies inherent and not inherent to the MCEN's core operation. Information technologies directly associated with operating the MCEN's logical and physical infrastructure are always considered an inherent part of the MCEN's core operation, and are always considered a permanent portion of the MCITE.

However, information technologies not associated with the MCEN's core operation (e.g., technologies such as Smart Phones, or the Data Distribution System-Modular, and all end systems) are considered ancillary and are therefore only considered a part of the MCEN when they are connected to it through an approved interface. Like inherent MCEN technologies, ancillary technologies are always considered a permanent portion of the MCITE. The circular arrows in Figure 3 indicate the inextricable but often ephemeral link between the MCEN and the MCITE. This distinction and relationship is important to note in order to highlight the intent of the MCITE layer as an encompassing construct around all Marine Corps IT, whether inherent to the MCEN or ancillary to it. This distinction is essential for policy matters and architecture initiatives.

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

## MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS)

### DESCRIPTION

MCEITS is an enterprise information technology capability that delivers value to Marine Corps decision-makers, application owners, information managers, and network users. MCEITS is the enterprise computing and communications capability in the Marine Air-Ground Task Force command and control framework. MCEITS provides enterprise Information Technology services contained within a world-class application and data hosting environment with supporting communications, computing network, information assurance, and enterprise services infrastructure supporting net-centric operations. MCEITS enables Marine Corps Information Technology portfolio consolidation of Information Technology facilities, infrastructure, and services.

The MCEITS service management design contains industry best practices and will utilize Information Technology Infrastructure Library-based principles and methods to provide capabilities to meet operating forces and supporting establishment requirements. The MCEITS System Integration Environment provides Marine Corps application owners and developers with formal application integration and evaluation processes and staging environment. The application inclusion process includes documented, defined, repeatable processes supporting the migration of applications into the operational environment. The MCEITS management effort will provide the documents that contain guidance for the successful management, evaluation and integration of new and modified enterprise services into the MCEITS operations environment.

The MCEITS operations environment provides the common Information Technology infrastructure, allowing the Marine Corps to achieve greater effectiveness and efficiency in the delivery and support of its Information Technology service operations relating to data management, application support, and informa-

tion sharing. MCEITS operations coordinates and carries out proactive and reactive activities supporting all the data, applications, and services in its environment including, utility computing, dedicated server provisioning, capacity utilization, operations scheduling, event and incident monitoring and resolution, problem management, system backup and restoration, and continuity of operations planning.

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

MCEITS achieved Milestone C on June 28, 2011 and Initial Operational Capability on July 6, 2011. MCEITS is proceeding with Release 2 to deliver high

availability, disaster recovery and continuity of operations capabilities to achieve Full Operational Capability.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:  
N/A

## GLOBAL COMBAT SUPPORT SYSTEM- MARINE CORPS (GCSS-MC) DESCRIPTION

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

## OPERATIONAL IMPACT

Marines in combat require a rapid and flexible logistics capability responsive to the 21st century battlefield. GCSS-MC answers this critical operational imperative. Providing a deployable, single point-of-entry for retail logistics transactions, GCSS-MC introduces cutting edge enabling technology in support of logistics operations, while facilitating modernization of aged logistics processes and procedures. Key to sustaining deployed logistics operations is the GCSS-MC enhancement of asset visibility and supplies accountability. Critical performance objectives include reduced logistics response, reduced customer wait time, and decreased dependence on forward-positioned stocks. Commanders will benefit from GCSS-MC due to increased Logistics Chain intelligence vital to effective command and control functions. Supply, Maintenance, and Distribution Marines will experience increased efficiency in planning, accountability and expedited delivery of supplies and equipment to supported units. GCSS-MC Increment 1 contains two distinct releases and will ride on the existing Marine Corps Tactical Data network. Release 1.1 provides for basic Supply, Maintenance, and Asset Tracking functionalities, while Release 1.2 centers on the system’s ability to operate in an expeditionary logistics environment in support of the Marine Air Ground Task Force by providing a cross-domain solution (i.e., unclassified and classified exchange of information) and data synchronization (e.g., continued operation in a disconnected environment) for deployed units. GCSS-MC is tied to GCSS-Joint within the GCSS Family of Systems to enable a Department of Defense system of record enabling joint logistics command and control.

## PROGRAM STATUS

**Increment 1:** Release 1.1 has been fully implemented in the III Marine Expeditionary Force Area of Operations, which includes Okinawa, mainland Japan, and Hawaii. Release 1.1 Total Force Implementation to

all operational units, bases and stations in the Continental United States began in September of 2011, and was completed in late 2012. Development of the deployable Release 1.2 capability is ongoing, with fielding expected to begin during 2013.

Metrics collection is a strong component of GCSS-MC. Initial operations in Okinawa indicates significant improvements in Order Ship Time, Repair Cycle Time, and Time to First Status. The full impact of these logistics enhancements will take time to assess and interpret although initial data indicates positive results.

**Increment II/Future Increments:** Current projections include an essential major Oracle COTS software upgrade to the e-business suite. Key system enhancements for Asset Logistics Management also include enhanced wholesale functionality, such as Warehouse Management solutions, Item Unique Identification, and other force multiplier capabilities to processes and reporting. Other improvements may include In-Transit Visibility and Standard Financial Information Structure accounting, along with continuous process improvements to Supply Chain Management and data warehousing capabilities.

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

Developer/Manufacturer:

Oracle USA, Inc, Redwood Shores, CA

## COMPOSITE TRACKING NETWORK (CTN)

### DESCRIPTION

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

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

CTN has completed AN/TPS-59 Long-Range Radar interface development. The software interface development for Aviation C2 and Ground/Aviation Task Oriented Radar (G/ATOR) are underway. Milestone C was achieved in the first quarter of FY 2009, and the software began Low Rate Initial Production in early 2010. Initial Operational Capability was achieved March 2011. The Approved Acquisition Objective is 25 systems — ten initial procurement and the remaining 15 dependent upon funding and required manpower adjustments.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:

Naval Surface Warfare Center, Crane Division, Crane, IN

## JOINT BATTLE COMMAND- PLATFORM (JBC-P) FAMILY OF SYSTEMS

### DESCRIPTION

JBC-P Family of Systems (FoS) is the Marine Corps primary battlefield Command and Control (C2) system. It provides tactical input and output of battlefield digitized position location information and Situational Awareness (SA) at the company, squad, and vehicle levels. It enables enhanced combat effectiveness of friendly forces. It populates the common tactical picture and supports development of the common operational picture. JBC-P FoS supports the full range of military operations. JBC-P is Increment II of the Force XXI Battle Command Brigade and Below program. JBC-P builds on the experience of evolutionary development of digital battle command information systems and provides integrated, on-the-move, timely, relevant C2/SA information to tactical combat, combat support and combat service support commanders, leaders, and key C2 nodes. JBC-P FoS provides mounted, dismounted, and command post C2/SA capability and will become the cornerstone of the Joint Blue Force Situational Awareness envisioned to support the joint warfighter.

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

JBC-P FoS Increment II is scheduled for Operational Test in FY 2013. Fielding will begin in FY 2014.

Procurement Profile:	FY 13	FY 14
Quantity:	0	1,354*

\* Procurement information is for Dismounted Initiative 1 only

### Developer/Manufacturer:

JBC-P is an Army-led partnership of the U.S. Army, Marine Corps, and the Software Engineering Directorate in Huntsville, AL.

## NETWORKING ON-THE-MOVE (NOTM) INCREMENT 1

### DESCRIPTION

NOTM Increment 1 is a transformational Command and Control (C2) capability for all elements of the Marine Air Ground Task Force (MAGTF). Increment 1 specifically targets urgent U.S. Central Command requirements but the program is envisioned to address broader requirements in an incremental approach. Leveraging expertise and lessons learned from developing Mobile Modular Command and Control systems operating in *Operation Enduring Freedom* since 2009, Increment 1 is an Urgent Statement of Need based rapid acquisition and fielding program providing robust C2 On-The-Move through wideband Satellite Communications and terrestrial data links. Consisting of four subsystems, Point of Presence Vehicle Kit (POP-VK) (A03877G), Staff Vehicle Kit (SV Kit) (A03887G), Staff Kit (SK) (A04057G), and TEP Modem Kit (TMK) (A03957G), NOTM Increment 1 provides three network enclaves, Secret Internet Protocol Router, Unclassified but Sensitive Internet Protocol Router and Mission Specific while incorporating Full Motion Video, Voice Over Internet Protocol, and other network centric capabilities all integrated on standard USMC tactical vehicles. SV Kits and SK utilize ruggedized laptops with a full suite of Joint Common Tactical Workstation software accessing the Common Tactical Picture and other C2 facilitating applications from the POP-VK to the rear command operations center.

### OPERATIONAL IMPACT

NOTM Increment 1 enables commanders to better exercise C2 while OTM and Beyond Line of Site and provides transmission paths that enable mobile forces,

across the MAGTF to collaborate, access information, and to exchange voice, video, and data in a dynamic environment while OTM and at the halt.

**PROGRAM STATUS**

IOC: March 2013

FOC: August 2014

Procurement Profile:	FY 13	FY 14
Quantity:		
POP-VK	43	16
SV Kit	85	32
SK	170	6
TMK	4	5

Developer/Manufacturer:  
 Space and Naval Warfare Systems Command (SPAWAR)  
 Pelatron Inc. Honolulu, HI

**TACTICAL NETWORKING SYSTEMS DESCRIPTION**

Tactical Networking Systems is a portfolio of core baseband networking hardware and software configured as a family of services that facilitates end-user services requirements of multiple security enclaves for Marine Air-Ground Task Force (MAGTF) tactical communications networks. The portfolio comprises the Joint Enhanced Core Communications System (JECCS); the Tactical Data Network (TDN), which includes the Data Distribution System-Modular (DDS-M) Core, and Expansion modules; the Digital Technical Control (DTC); and the Transition Switch Module (TSM).

JECCS is the joint task force (JTF) enabler, a “first-in” integrated, processor-controlled communications and management system that provides Command and Control (C2) capabilities supporting a Marine Expeditionary Unit (MEU) deployment ashore or the early phases of a deployment by a larger command element,

such as a MAGTF or JTF commander’s mission into an area of operations. It provides the primary interface between subscriber equipment and the long haul multi-channel transmission systems. JECCS facilitates secure and non-secure voice and data communications, switching functions, network routing, and management functions. JECCS multiplexes Marine Corps Tri-Band satellite systems, Tropospheric Scatter Microwave Radio Terminal (AN/TRC-170), and Digital Wideband Transmission System (AN/MRC-142) into an integrated network. This integration enables access to Defense Information Services Network (DISN) telecommunication services, wide and local area networks, Secret Internet Protocol Router Network (SIPRNet), and Sensitive but Unclassified Internet Protocol Router Network (NIPRNet) networks and physical network management services, messaging services, International Maritime Satellite, Global Broadcast System (GBS), and Ultra High Frequency-Tactical Satellite (UHF-TACSAT) capabilities.

TDN DDS-M provides an Internet Protocol (IP)-based data networking capability for communications support to organizations organic to a MAGTF. The transit-cased DDS-M provides an extension of the DISN, SIPRNet, and NIPRNet, as well as a coalition networking capability. It provides the backbone tactical data communications infrastructure to the MAGTF commander in the form of an integrated data network providing the capability to access a single data network enclave, authenticate users and equipment, send and receive electronic mail, share and store files, directory services, disaster recovery/ COOP, perform required information assurance functions, Integrated Services Digital Network, transparent routing and switching of digital messages between the LAN, circuit switch, and EPLRS sub networks. The DDS-M provides Marine Corps maneuver elements with a flexible, survivable, scalable, and modular IP data transport capability that enables access to strategic, supporting establishment, joint, and other service tactical data networks.

DTC provides a deployable technical control func-

tion for the MAGTF commander. The DTC performs control and management functions over expanding digital communications systems, integrating the communications assets of a node into an efficient system that provides the MAGTF commander with seamless communications while making efficient use of limited bandwidth and equipment. The DTC is the central management facility, terminating all terrestrial links and switch circuits for major commands. Data circuits and miscellaneous subscriber circuits are interconnected, as required. The DTC consists of an S-280 shelter that is modified to accommodate commercial off-the-shelf (COTS), government off-the-shelf, and non-developmental item technical control and ancillary equipment.

TSM provides a flexible unit level switch that replaced legacy TRI-TAC switches (SB-3614, SB-3865, AN/TTC-42) with more robust voice and data switching, data transport, and bandwidth management capabilities. The TSM consists of three functional suites of equipment mounted in transit cases: (1) the Deployable End Office Suite (DEOS); (2) the Remote Subscriber Access Module (RSAM); and (3) the Deployable Integrated Transport System (DITS). TSM maintains USMC joint interoperability as the other services transition to COTS switching technologies. The modular design of the TSM provides the capability to add or delete equipment without adversely affecting existing communications architectures. A further emerging requirement is to incorporate a Voice over Internet Protocol (VoIP) capability.

### OPERATIONAL IMPACT

JECCS meets the Joint Task Force Enabler (JTFE) mission requirements with a “first-in” backbone connectivity capability that accesses the Defense Information Network Standard Tactical Entry Point, Nonsecure Internet Protocol/Secret Internet Protocol Router Network, Video Teleconference, and Defense Switch Network. JECCS augments both current and some planned communications architectures and provides

technical control and network management services for a broad range of switching and radio connectivity requirements.

TDN DDS-M provides its subscribers with basic data transfer and switching services; access to strategic, supporting establishment, joint, and other service component tactical data networks; network management capabilities; and value-added services such as message handling, directory services, file sharing, and terminal emulation support. It will provide IP connectivity for tactical data systems and the Defense Message System.

DTC provides the resources for the technical controller to exercise effective operational control over the communications links, trunks, and groups within a deployed Marine Corps network. DTC is located at the Marine Force Component, Marine Expeditionary Forces (MEFs), and Major Subordinate Command (MSC) HQ C2 nodes. Within a MAGTF node, the DTC can connect to multiple transmission systems such as satellite systems, multi-channel systems, single channel radio systems, and cable. From the MEF user’s perspective, the DTC provides the multiplexing and link management of four general categories of information. The DTC manages voice/circuit switches, data switches, and dedicated circuits.

TSM is employed at all levels of the MAGTF to effect voice and limited data switching capability. The modular design allows units to implement the system according to the mission needs. The equipment is operated and maintained by MSC, Marine Expeditionary Unit, Marine Expeditionary Brigade, and MEF communications personnel. The number of TSM packages deployed to a theater will be commensurate with the size of the operation/contingency. The TSM equipment has been fielded to all levels of the MAGTF.

### PROGRAM STATUS

Initial Operational Capability (IOC) for Core Module Suites was completed in 2012. Full Operational Capability (FOC) for Core Module Suites is expected to take place in fourth quarter of FY 2013. IOC for

Expansion Modules is scheduled for the second quarter of FY 2014 with FOC occurring in second quarter of FY 2015.

JECCS underwent an IA upgrade during FY 2012 to ensure compliance with IA requirements. A series of Engineering Change Proposals (ECPs) are planned during FY 2013 – FY 2015 to preclude any obsolescence, interoperability, and information assurance issues.

DTC has undergone a system refresh, and IOC was achieved in 2012. FOC is expected to take place by the third quarter of FY 2013.

TSM is in sustainment with replacement of obsolete components being conducted through ongoing ECPs. Initial development of a VoIP capability is expected to begin during FY 2013. A comprehensive review of the Authorized Acquisition Objective for TSM will be concluded during FY 2013. This review is expected to reduce quantities for DEOS and RSAM.

Procurement Profile:	FY 13	FY 14
Quantity:		
DDS-M	477	0
JECCS	14	0
TSM-DEOS	221	0
RSAM	855	0
DITS	128	0

Developer/Manufacturer:

DDS-M: General Dynamics C4 Systems, Taunton, MA

JECCS: SPAWAR, Charleston, SC

DTC and TSM: SPAWAR, Charleston, SC

## TACTICAL COMMUNICATION MODERNIZATION (TCM)

### DESCRIPTION

TCM is a family of radio systems that bridges the gap between legacy systems — non-networking, non-communication security (COMSEC) modernization compliant — and forecasts delivery of advanced systems that operate Joint Networking Waveforms such as Soldier Radio Waveform, Wideband Networking Waveform, and Mobile User Objective System (MUOS). TCM addresses the requirement to enhance, improve, upgrade, and sustain tactical radios while achieving interoperability and minimizing the effects of equipment obsolescence. TCM procurements support National Security Agency COMSEC modernization requirements that must be compliant no later than 2024. This entails replacing thousands of Multi-Band Radio (MBR) systems and High Frequency (HF) systems such as the AN/PRC-117F and AN/PRC-150.

### OPERATIONAL IMPACT

TCM provides the primary means of secure voice and data networked communications for mounted and dismounted forces. It also provides push-to-talk and networked radios that operate across multiple frequency bands and modes of operation. TCM enables Command and Control and Situational Awareness for all elements of the Marine Air Ground Task Force and networked data communication down to the squad/team level.

### PROGRAM STATUS

The TCM line consists of multiple radios at various levels of development, procurement and sustainment. Currently in the sustainment phase are: high frequency radios; (AN/PRC-150, AN/VRC-104, AN/TRC-209 and AN/MRC-148), MBRs; (AN/PRC-117F and AN/VRC-103); Tactical Handheld Radios (THHRs); (AN/PRC-148(V)2/3, AN/PRC-152, and AN/VRC-110/112/113), as well as the Integrated Intra-Squad Radios (IISR).

Legacy systems, such as Enhanced Position Locating and Reporting System, will not be supporter after 2016. Radios in the procurement phase include: the MBR II; (AN/VRC-117G, AN/VRC-114(V)1, and AN/MRC-145B), Wideband THHR; and MUOS. Planning for the follow-on generation of IISR and HF radios to address lifecycle and COMSEC modernization compliance is underway.

Procurement Profile:	FY 13	FY 14
Quantity:		
MBR II	385	367
MUOS	N/A	TBD

Developer/Manufacturer:  
Harris- Melbourne, FL  
Thales- Clarksburg, MD  
Motorola- Schaumburg, IL  
Raytheon- Waltham, MA

## TACTICAL DATA NETWORK (TDN) DATA DISTRIBUTION SYSTEM- MODULAR (DDS-M)

### DESCRIPTION

The TDN DDS-M provides the tactical Unclassified but Sensitive Internet Protocol Router, Secret Internet Protocol Router, and Coalition Network backbone data communications infrastructure to the Marine Air Ground Task Force (MAGTF). DDS-M allows users to access to web surfing, send and receive e-mail, file sharing/storage, perform required Information Assurance functions, and to host mission-essential applications. DDS-M provides firewalls, servers and data infrastructure components that allow tactical and deployed USMC forces to connect to the Defense Information Systems Agency and Theater and USMC Enterprise Networks. Programs such as Combat Operations Center, Common Aviation Command and Control System, and Common Logistics Command and Control System utilize DDS-M for world-wide connectiv-

ity. DDS-M is comprised of both core and expansion modules. Core modules include the Configuration Module (CM), Communications Switch Module, LAN Services Module, LAN Extension Module, Application Server Module and Data Storage Module. Expansion modules include the WAN Service Module (WSM), Multimedia Control Module, Multimedia Distribution Module, Enterprise Switch Module (ESM), Deployed Information Assurance Tools Suite, and Information Assurance Module (IAM).

### OPERATIONAL IMPACT

TDN DDS-M provides extension of the Marine Corps Enterprise Network via the Global Information Grid to forward deployed forces – i.e. the last tactical mile. The modular packaging of the DDS-M provides a ‘take what the mission needs’ employment concept within the MAGTF.

### PROGRAM STATUS

Core Module Suites:

IOC: 4Q FY12

FOC: 4Q FY13

Expansion Modules:

IOC: 2Q FY14

FOC: 2Q FY15

Procurement Profile:	FY 13	FY 14
Quantity:		
Core Module Suites:	477	0
Expansion Modules:		
WSM(V)1	0	49
WSM(V)2	0	880
ESM	0	62
Power Module	0	111
IAM	0	148
CM	0	148

Developer/Manufacturer:  
General Dynamics- West Falls Church, VA

## GROUND-BASED AIR DEFENSE TRANSFORMATION (GBAD-T)

### DESCRIPTION

GBAD-T is the Marine Corps only organic ground-based air defense capability. GBAD-T uses the High-Mobility Multipurpose Wheeled Vehicle (HMMWV)-based Advanced Man-Portable Air Defense System (A-MANPADS) and the Stinger missile to defeat both fixed- and rotary-wing threats.

### OPERATIONAL IMPACT

Employing A-MANPADS and the Stinger missile, the Low-Altitude Air Defense (LAAD) Battalions provide the MAGTF low-altitude, short-range air defense asset against enemy air threats. LAAD battalion detachments deploy with Marine Expeditionary Units (MEUs) as part of the Marine Air Control Group detachment.

The A-MANPADS Increment I program enhances the legacy systems' command and control suite. The hardware and software upgrade provides an enhanced fire-control and air/ground situational-awareness capability to the LAAD Battalions. Increment I uses Joint Range Extension Application Protocol, a joint-certified data link, ensuring compatibility with legacy and future C2 architectures. Increment I radios are satellite-communications capable.

### PROGRAM STATUS

In May 2009, the Marine Requirements Oversight Council approved the GBAD Initial Capabilities Document (ICD) that validated existing capability gaps against low-observable/low-radar cross-section threats. The GBAD Analysis of Alternatives identified candidate material solutions for the Stinger missile replacement that fill the gaps identified in the GBAD ICD. The Marine Corps will execute a service life extension program of the Stinger missile to maintain a GBAD capability as a bridge to a to-be-determined weapons system to be programmed for Program Objective Memoranda

(POMs) 2015 and 2016. The future weapon system is envisioned to provide continuous, on-the-move, low-altitude air defense for the Marine Air Ground Task Force (MAGTF). The program will examine future capabilities, such as an integrated multi-mission turret with a gun, missiles, and directed-energy weapons, which support future material and technology solutions and the joint on-the-move engagement sequence.

Procurement Profile:	FY 13	FY 14
Quantity:		
Section Lead		
Vehicles	10	3
Fire Unit Vehicles	41	9

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

## AN/TPS-59A(V)3 RADAR SYSTEM

### DESCRIPTION

The AN/TPS-59 was fielded in 1985 and is the only Marine Air Ground Task Force (MAGTF) long-range, three-dimensional, air surveillance, theater ballistic missile defense (TBMD)-capable radar. The AN/TPS-59A(V)3 a is transportable, solid-state L-band radar that serves as the MAGTF's principal air-surveillance radar and is integrated into the TYQ-23(V)4 Tactical Air Operations Module. The radar may also be configured for operation with the MSQ-124 Air Defense Communication Platform to provide TBM track data to the Joint Tactical Information Distribution System via the Tactical Digital Information Link-Joint Service Link-16 network.

The TPS-59(V)3 is a component in the Navy's Cooperative Engagement Capability in the littoral environment and is the Marine Corps lead sensor in the Composite Tracking Network.

### OPERATIONAL IMPACT

The AN/TPS-59A(V)3 radar system is optimized to detect and track TBMs and air-breathing aircraft targets that constitute threats to MAGTF operations. Marine Air Control Squadrons employ the radar during sustained operations ashore and as part of the joint theater integrated air and missile defense architecture. The radar system supports the MAGTF commander in anti-air warfare operations and en-route traffic control to a distance of 300 nautical miles and TBM surveillance to 400 nautical miles. The radar system is deployed to *Operation Enduring Freedom* and in direct support of MAGTF operations.

### PROGRAM STATUS

The AN/TPS-59A(V)3 Radar System is in the operations and support phase. In order to maintain the radar to 2025, an incremental sustainment strategy of engineering change proposals and technical refresh efforts will address diminishing manufacturing sources, material shortages, and obsolescence issues. Additionally, per Department of Defense mandate, a Mode 5 Identification Friend or Foe capability will be incorporated into the AN/TPS-59A(V)3 in the FY 2014 to FY 2015 timeframe.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

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

### IDENTITY DOMINANCE SYSTEM (IDS)

#### DESCRIPTION

The requirement for an enduring Marine Corps biometric capability originated from urgent warfighter requests to support counter-insurgency operations in Iraq and Afghanistan. The Biometric Automated Toolset (BAT) is a fielded, commercial-off-the-shelf item that is fulfilling that immediate need. The Identity Dominance System (IDS) will replace BAT with improvements such as increased data storage and longer battery life.

The IDS will be a multimodal biometric system that collects and compares unique, individual biometric characteristics to enroll, identify, and track persons of interest and build digital dossiers on the individuals for purposes that include anti-terrorism/force protection, local employee screening, detention management, civil affairs, base access, humanitarian assistance, population control, counter intelligence, and high-value target identification. The IDS is designed as a three-tiered system with hardware and software including a server suite capability, a client suite capability, and a family of handheld capabilities.

#### OPERATIONAL IMPACT

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

#### PROGRAM STATUS

In August 2012, a Marine Corps Systems Command Acquisition Decision Memorandum designated the IDS as an Abbreviated Acquisition Program and

the Program Decision Authority to Program Manager, Marine Air Ground Task Force Command, Control and Communications. The Marine Corps intends to be a customer of the larger DOD Biometrics program but will maintain an interim capability until the joint solution is available. The Army schedule for the joint solution shows and Initial Operational Capability for IDS-Marine Corps in FY 2019.

Developer/Manufacturer: TBD

## COUNTER RADIO-CONTROLLED IMPROVISED EXPLOSIVE DEVICE (RCIED) ELECTRONIC WARFARE (CREW)

### DESCRIPTION

The RCIED CREW systems are vehicle-mounted and man-portable backpack active/reactive electronic countermeasure systems designed to counter high and low-powered radio controlled IEDs.

### OPERATIONAL IMPACT

The Marine Corps CREW program provides Marines with an effective electronic warfare capability to counter the threat posed by RCIEDs and to improve force protection. The CREW Vehicle Receiver/Jammer (CVRJ) is the primary vehicle-mounted jammer, while the Thor III dismounted system is the in-service man-portable system. Thor III provides coverage and protection from RCIEDs when Marines are dismounted and operating outside the protective envelope of mounted CREW systems.

### PROGRAM STATUS

The Marine Corps CREW program was designated as an Acquisition Category II program in February 2007 and achieved a full rate production decision in March 2007. The CREW program initially acquired a total of 10,089 Chameleon and Hunter systems. This initial capability evolved into CREW 2.1, the CVRJ. The December 2008 approval of the Joint CREW 3.3 Capabilities Development Document and February 2009 approval of the CREW Program Office Acquisition Strategy/Acquisition Plan led to the procurement of up to 8,000 CVRJ. CVRJ and THOR III legacy systems will be maintained and sustained to meet the operational requirements of the Combatant Commands.

Planned Approved Acquisition Objective for the enduring CREW requirement is 2,410 total systems: 1845 Mounted and 565 Dismounted systems.

Procurement Profile:	FY 13	FY 14
Quantity:	0	0

Developer/Manufacturer:

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

Chameleon: General Dynamics, Falls Church, VA

Thor III: Sierra Nevada Corporation, Sparks, NV



## SECTION 6: INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE



## DISTRIBUTED COMMON GROUND SYSTEM-MARINE CORPS (DCGS-MC) ENTERPRISE

DCGS-MC, in compliance with the Department of Defense (DOD) DCGS Family of Systems concept and policies, is a service-level effort to migrate select Marine Corps intelligence, surveillance, and reconnaissance (ISR) capabilities into a single, integrated, net-centric baseline. As part of the processing, exploitation, analysis, and production component of the Marine Corps ISR Enterprise, DCGS-MC will comprise functional capability sets that support Marine intelligence analysts across the Marine Air Ground Task Force (MAGTF) and supporting establishment by making organic and external all-source ISR data more visible, accessible, and understandable. The DCGS Integration Backbone provides foundational interoperability among the Services' DCGS programs.

### OPERATIONAL IMPACT

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

### PROGRAM STATUS

The DCGS-MC program Increment 1 achieved Milestone B during the fourth quarter of FY 2011 and was granted authority to enter into the Engineering and Manufacturing Development Phase. DCGS-MC will continue to leverage the developmental efforts of other services' DCGS programs. The program acquisition strategy is based on incremental development optimized to rapidly introduce government and commercial technologies, enterprise standards, and modular hardware components in order to minimize costs and reduce program risk. The program subsumed the Tactical Exploitation Group and Topographic Production Capability programs during FY 2010 as part of the

Increment I development. The DCGS-MC Capability Development Document (CDD) is anticipated to be approved for conversion to an Information Systems CDD by the joint staff during second quarter FY 2013. Approval of this updated requirements document will enable DCGS-MC to more rapidly and efficiently integrate and field emerging technologies.

Procurement Profile:	FY 13	FY 14
Quantity:	0	25

### Developer/Manufacturer:

The Space and Naval Warfare Systems Command Systems Center Atlantic (SSC LANT) is the lead systems integrator.

## INTELLIGENCE ANALYSIS SYSTEM (IAS) FAMILY OF SYSTEMS (FOS)

### DESCRIPTION

IAS FoS provides the all-source analysis capabilities within the Distributed Common Ground System – Marine Corps Enterprise. It uses a three-tiered approach for receiving, parsing, and analyzing information from multiple sources to fuse and disseminate all-source intelligence products and threat warnings. Tier I, the Marine Expeditionary Force (MEF) IAS, is a mobile system that supports the MEF Command Element. Tier II is the Intelligence Operations Server that supports intelligence operations at the major subordinate commands within the Divisions, Regiments, Wings, and Groups. Tier III is the Intelligence Operations Workstation that supports intelligence operations at the battalion, squadron, and company levels using client/server and web-based technology to network with intelligence sections and units at higher echelons. The IW can also function as a stand-alone workstation in a disconnected or degraded communication environment.

**OPERATIONAL IMPACT**

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

**PROGRAM STATUS**

The IAS FoS is in the operations and support phase of the acquisition process. All systems are fielded to the operating forces and Marine Reserve units. IAS FoS executes periodic hardware, software, and peripheral upgrades.

Procurement Profile:	FY 13	FY 14
Quantity:		
Tier I	10	0
Tier II	0	1,717

Developer/Manufacturer:  
Space and Naval Warfare Systems Center, Charleston, SC is the lead systems integrator.

**TECHNICAL CONTROL AND ANALYSIS CENTER (TCAC)**

**DESCRIPTION**

TCAC is the Marine Corps primary signals intelligence (SIGINT) analysis system. TCAC satisfies the Marine Corps requirement for a semi-automated tactical SIGINT and Electronic Warfare (EW) fusion system that can perform the processing, analysis, and reporting functions of the Radio Battalions (RadBn), Marine Special Operations Intelligence Battalion, and Marine Tactical Electronic Warfare Squadrons (VMAQ). TCAC fuses signals intelligence data from organic, theater, and national collection platforms and is the focal point of the RadBn SIGINT operations. TCAC deliv-

ers an enhanced automated intelligence processing, analyzing, and reporting capability that improves the total control and management of SIGINT and EW capabilities, including the production and dissemination of SIGINT/EW information for the Marine Air Ground Task Force (MAGTF).

**OPERATIONAL IMPACT**

TCAC is the primary system that enables SIGINT Marines to provide planning support and timely and accurate, fused signals intelligence to the MAGTF. TCAC is deployed in support of MAGTF operations worldwide in two configurations: the TCAC Remote Analysis Workstation (RAWS) and the Transportable Workstation.

**PROGRAM STATUS**

TCAC is a fully fielded, post-Milestone C program that is undergoing incremental upgrades to improve current capabilities. Major enhancements include a Windows Server upgrade, Full Disk Encryption, a fully integrated audio processing capability, a Semantic Wiki with user-defined alerts, Digital Network Intelligence analysis capability, and integration with the Real Time Regional Gateway.

Procurement Profile:	FY 13	FY 14
Quantity:		
TCAC RAWS	15	0
Transportable Workstation	500	0

Developer/Manufacturer:  
Space and Naval Warfare Systems Center, San Diego, CA is the lead systems integrator.

## SENSITIVE COMPARTMENTED INFORMATION COMMUNICATIONS (SCI COMMS)

### DESCRIPTION

SCI Comms is the former Trojan Special Purpose Integrated Remote Intelligence Terminal (Trojan SPIRIT) program and focuses on meeting broad-ranging intelligence communications requirements. SCI Comms is a portfolio consisting of several high-bandwidth communications systems, including man-portable, palletized, and trailer-mounted variants. Each system provides a unique, mission-specific capability. However, all systems provide the Marine Air-Ground Task Force (MAGTF) commander a near real-time means to move perishable data for the production of timely, actionable intelligence.

### OPERATIONAL IMPACT

SCI Comms provides MAGTF commanders short- and long-haul, deployable and secure communication capabilities using existing networks and access providers (examples include the Defense Intelligence Activity, the Defense Information Systems Agency, or the U.S. Army Intelligence and Security Command). SCI communications are deployed in support of MAGTF intelligence units worldwide and provide dedicated, mission critical intelligence communications.

### PROGRAM STATUS

SCI Comms approved acquisition objective is 32 palletized systems, 20 mobile systems and 18 Team terminals.

#### Developer/Manufacturer:

Trojan SPIRIT LITE (V)1: U.S. Army Communications Electronics Command (CECOM) Intelligence and Information Warfare Directorate (I2WD) – now part of U.S. Army Research, Development and Engineering Command (Provisional), Fort Monmouth, N.J. -- is the material developer for the TROJAN family, including TROJAN SPIRIT II and TROJAN SPIRIT LITE. The combat developer is

the U.S. Army Intelligence Center & Fort Huachuca, Ariz., with the U.S. Army Intelligence and Security Command, TROJAN Management Office, serving as executive agent for the system. The system is fabricated and integrated by CECOM I2WD with the largest subcontractor being Global SATCOM Technologies, Gaithersburg, Md. for the satellite communications subsystem.

High Band Special Intelligence Mobile Terminal (HBSI-MT): PM WIN-T, Aberdeen, Maryland (Contracting Office), HBSI-MT fabricated and integrated by General Dynamics, Duluth, GA.

HBSI Team Terminal: DJC2 Program Office, Pensacola, FL; SWE-DISH: Rockwell Collins, Duluth, GA

## COUNTER-INTELLIGENCE AND HUMAN INTELLIGENCE EQUIPMENT PROGRAM (CIHEP)

### DESCRIPTION

CIHEP supports the full spectrum of counter-intelligence (CI) and human intelligence (HUMINT) operations with imagery, commercial satellite communications, auxiliary power, automated data processing, and sensitive technical support equipment. All equipment is stored and transported in lightweight, modular, and deployable cases to facilitate task organization of equipment for assigned missions. The standardized CIHEP software baseline provides reporting, analysis, communications, mapping, still and video image processing, and Common Operational Picture applications.

### OPERATIONAL IMPACT

CIHEP enhances the Counterintelligence HUMINT Detachment (CHT) ability to conduct HUMINT and CI operations in support of Marine Air Ground Task Force missions at the tactical, operational, and service levels. The equipment suite provides CHTs with an organic capability to research collection requirements, process collected information,

produce intelligence reports, and disseminate those reports securely to supported commanders and the Intelligence Community. The equipment also provides limited organic technical support to CI and HUMINT operations.

**PROGRAM STATUS**

In fourth quarter of FY 2012, CIHEP was successfully granted a full rate production determination by the milestone decision authority to proceed with the CIHEP Modification to Systems (Mods). CIHEP Mods includes a surveillance communication, media exploitation, and technical support capability. CIHEP is scheduled to return to the milestone decision authority to request a fielding decision by third quarter FY 2013. The existing components within CIHEP are in sustainment, and selected components are refreshed annually.

Procurement Profile:	FY 13	FY 14
Quantity:		
Communication Set	30	0
Technical Support Set	66	0
Media Exploitation Light	86	0
Module Refresh	0	166
Communication Suite	0	230

Developer/Manufacturer:  
 Various, including: Canon U.S.A., Inc., Lake Success, NY; Harris Communications Corp, Rochester, NY; IDEAL Technology Corporation, Orlando, FL; Klas Telecom, Inc., Washington, D.C.; Panasonic Corp., Secaucus, NY; and Thales Communications, Rockville, MD.

**MAGTF SECONDARY IMAGERY DISSEMINATION SYSTEM (MSIDS)**

**DESCRIPTION**

Marine Air-Ground Task Force (MAGTF) Secondary Imagery Dissemination System (MSIDS) provides the capability to capture key ground view perspective intelligence and puts an imagery collection asset with the local commander. The MSIDS Family of Systems (FoS) meets three different mission profiles. The first mission profile provides the MAGTF the capability to take digital imagery of named areas of interest from forward positions and transmit them via organic field radios to tactical and theater command and control facilities in near real time. The second mission profile provides all MAGTF intelligence sections, artillery, tank, civil affairs, Combat Engineer Battalions, logistics units and other various units the ability to take pictures and video for Battle Damage Assessment, Force Protection or intelligence gathering. The third mission profile is to edit, manipulate, annotate, and brief collected imagery, and to disseminate imagery and intelligence products to adjacent or higher units.

**OPERATIONAL IMPACT**

MSIDS provides the only self-contained, hand-held, ground-perspective imagery capability to MAGTF units and is essential in intelligence collection, mission planning, battle damage assessments and force protection.

**PROGRAM STATUS**

MSIDS consists entirely of commercially available off-the-shelf components. Approximately one-fifth of the system's components are refreshed each year. The approved acquisition objective is 5,698 units.

Procurement Profile:	FY 13	FY 14
Quantity:		
Data Controllers	1000	0
Advanced Video Suites	65	0
Thermal Components	100	0

Advanced Camera Suites	0	606
Basic Camera Suites	0	1182
Base Stations	0	137

**Developer/Manufacturer:**

Various vendors, including Canon, Epson, Sony, Panasonic, ITT, Bogen-Manfrotto, ViaSat, FLIR, Integrity Data Inc.

## REMOTE VIDEO VIEWING TERMINAL (RVVT)

### DESCRIPTION

The RVVT allows viewing and exploitation of video and metadata from multiple unmanned aircraft systems and manned LITENING pod-equipped aircraft. As a program of record, the RVVT will replace the previous two generations of remote viewing terminals (ROVER and VideoScout) that were fielded through the Urgent Universal Need Statement process. RVVT will also assume the operations and sustainment of these legacy systems.

### OPERATIONAL IMPACT

RVVT provides the Marine Air Ground Task Force (MAGTF) a more complete view of the battlefield by allowing Marines to view video from various theater and organic intelligence, surveillance and reconnaissance assets that are in the MAGTF area of operations in a compact portable form-factor. RVVT allows Marine forward air controllers, joint tactical air controllers, and commanders at regiment and below to view real-time video, capture and exploit the data, and receive platform metadata for precision targeting thus increasing battlespace awareness and enabling the warfighter to characterize and engage threats more effectively.

### PROGRAM STATUS

RVVT is in the pre-materiel solution analysis phase. The current focus of the program is maintenance

and sustainment of the VideoScout systems until the RVVT program of record systems are fielded, which is scheduled for FY 2016. Milestone B is scheduled for FY 2013, and Milestone C is scheduled for FY 2015. The Marine Corps procured a total of 599 VideoScout systems during FY 2010 and FY 2011 and is considering an engineering change proposal to meet a Suite A (Type 1) encryption requirement for VideoScout.

Procurement Profile:	FY 13	FY 14
Quantity:		
VideoScout	0	0
RVVT	0	36

## WIDE FIELD OF VIEW PERSISTENT SURVEILLANCE (WVPS)

### DESCRIPTION

In response to a Joint Urgent Operations Need Statement (JUONS) from the U.S. Central Command, the Marine Corps is developing and fielding a ground receive station (GRS) with automated data handling and intelligence analysis that will enable Marine Forces to employ a dedicated Wide Area Airborne Surveillance sensor payload on Marine Corps organic unmanned aerial system (UAS). WVPS will be able to downlink wide area images from any Common Data Link (CDL)-compliant wide area system, and will direct collection from the Wide Focal Plane Array Camera (WFPAC). In near real time, it will generate automated tracking of vehicle-sized movers and perform intelligence fusion on a subset of the imagery. Post-mission, WVPS will generate automated tracking of all vehicle-sized movers and perform intelligence fusion across the entire mission area and duration.

WVPS is one of four multi-service programs supporting the WFPAC quick-reaction capability in response to the JUONS. As part of the MCISR-E, the GRS will be integrated into the DCGS-MC program of record.

### OPERATIONAL IMPACT

This system will provide the ability to receive and disseminate imagery down-linked from the wide field of view sensor via the SIPRnet. WFVPS imagery will be incorporated into multi-intelligence products at the Intelligence Battalion.

### PROGRAM STATUS

The system is scheduled for a Field User Evaluation during the first quarter of 2013. The evaluation will inform future program of record efforts. In FY 2013, WFVPS will transition to a program of record. Ground receive stations will be fielded to each Marine Expeditionary Force and to the supporting establishment.

Procurement Profile:	FY 13	FY 14
Quantity:	3	1

Developer/Manufacturer:  
Los Alamos National Laboratory, NM.

## 21ST CENTURY MARINE EXPEDITIONARY INTELLIGENCE ANALYSIS (MEIA-21)

### DESCRIPTION

MEIA-21 is a non-material analysis modernization program to improve intelligence analysis from the Company Level Intelligence Cell to the Service Intelligence Center. The program creates the applied analytic tradecraft methods used to answer mission-specific questions that lead to the production of intelligence. Applied tradecraft is created by specialist organizations within Marine Intelligence that consolidate and improve intelligence techniques and methods. As it is developed, applied analytic tradecraft is inserted in an enterprise environment for intelligence analysts to use in addressing a wide range of operational requirements. MEIA-21 is the Marine Corps Director of Intelligence analysis program to provide applied analytic

techniques to meet the intelligence challenges of the 21st-century operating environment.

### OPERATIONAL IMPACT

MEIA-21 provides Marine intelligence analysts at all levels within the Marine Air Ground Task Force a strong set of applied analytic tradecraft to accurately answer intelligence questions and provide commanders with actionable intelligence. It institutionalizes new and proven analytic techniques by creating a culture within Marine Intelligence to structure, capture, refine, train, archive, and disseminate analytic tradecraft. MEIA-21 is the pathway to overcoming the analytic shortfalls of the present and to increasing and sustaining the professionalism of Marine Corps intelligence analysis. The creation of analytically rigorous Marine Corps applied intelligence tradecraft, based on principles from the social and physical sciences, will lead to higher reliability, reduced errors, significant explanatory power, and self-correcting techniques. Further, it generates new knowledge and reliable, actionable intelligence about the enemy and the environment in which the enemy operates.

### PROGRAM STATUS

In 2011, Marine Intelligence collected, improved, and disseminated 27 individual elements of applied analytic tradecraft for training and operational use. In 2012, Center for Marine Expeditionary Intelligence Knowledge (CMEIK) refined and validated 23 Structured Methods and Techniques (SMATs) with an external Social Science Board; created nine new SMATs; produced a handbook of social science theories applicable to SMATs; and developed a framework for foundational SMATs to support and/or feed into other, more complex SMATs. CMEIK conducted five training sessions targeted at developing tradecraft facilitators at intelligence units throughout the Marine Corps intelligence enterprise. In addition, CMEIK collaborated with Advanced Analytics tool developers to automate some of the processes associated with SMATs.

## TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES (TENCAP)

### DESCRIPTION

The mission of the Marine Corps TENCAP program is to exploit in-service national reconnaissance systems and programs by examining both technical and operational capabilities, implementing training, and sponsoring prototyping capabilities and concept demonstrations to directly support Marine Corps operating forces. The program objectives seek to optimize the tactical use of current national systems, maximize the tactical utility built into future systems, and rapidly deliver emerging technologies to the operating forces in order to provide greater access to national systems data.

### OPERATIONAL IMPACT

The TENCAP program advocates for tactical requirements to be addressed in the development of new national intelligence systems. The program transitions results of demonstrations and field user valuations to the Marine Corps Intelligence Activity for Service analytical use; Marine Corps Systems Command for acquisition decisions; Marine Corps Combat Development Command for appropriate doctrine, training, or force structure actions; or other government organizations as appropriate. The program also supports and conducts various intelligence planning and study efforts as directed by the Marine Corps Director of Intelligence.

### PROGRAM STATUS

The Marine Corps TENCAP program moved under the operational control and governance of the Intelligence Department Technology Innovation Division during the spring of 2011.

## TEAM PORTABLE COLLECTION SYSTEM MULTI-PLATFORM CAPABLE (TPCS-MPC)

### DESCRIPTION

The TPCS-MPC provides the Marine Air Ground Task Force (MAGTF) with integrated, semi-automated signals intelligence (SIGINT) equipment. With it, MAGTF Marines can conduct communications intelligence, direction-finding, and computer-aided SIGINT analysis, as well as provide indications and warnings, electronic warfare support, and limited cyber operations. TPCS-MPC is scalable to meet tactical mission requirements, having single collection outstations for stand-alone requirements and integrated capabilities. The primary emphasis is on rapid procurement of commercially available off-the-shelf, government off-the-shelf, and non-developmental item technologies and systems. The program focuses on limited integration to allow rapid fielding of new capabilities to Radio Battalions (RadBns). TPCS-MPC suites consist of platform integration kits (PIK) that provide the interface devices required to deploy various configurations of the exploitation modules on non-dedicated platforms, such as the Mine-Resistant Ambush-Protected (MRAP) vehicle.

### OPERATIONAL IMPACT

TPCS-MPC will provide enhanced SIGINT suites and PIKs to enable installation of the system into RadBns and Marine Special Operations Command organic ground platforms. TPCS-MPC will be operated in a dismounted mode, or stationary mode and mobile modes when installed on a platform. In response to the Deputy Commandant for Combat Capabilities and Integration guidance, the program office has pursued development of PIKs to provide armored protection against asymmetric threats. PIK development will be determined by existing and planned RadBn platform assets. Planned PIK development will be the up-armored High Mobility Multipurpose Wheeled Vehicle, the Integrated Assault Platform, the MRAP and the Light Armored Vehicle.

**PROGRAM STATUS**

The TPCS-MPC Block 0 achieved Full Operational Capability in 2009. TPCS-MPC achieved Milestone C in May 2011 and Initial Operational Capability in third quarter of FY 2012. Additional systems will be delivered in second and fourth quarter FY 2013 with full operational capability planned for fourth quarter FY 2013.

Procurement Profile:	FY 13	FY 14
Quantity:		
Master Station	29	0
Advanced Case	35	0
Modular Case	54	0
Locate Case	73	0
Work Station	236	0

**INTELLIGENCE SUPPORT TO CYBERSPACE OPERATIONS**

**DESCRIPTION**

The development of Marine Corps cyberspace capabilities is critical in ensuring Marine Air Ground Task Force (MAGTF) Commanders can successfully maneuver and achieve desired effects within the cyberspace domain. MAGTF Commanders rely on timely and accurate intelligence, and increasingly this intelligence resides in the cyberspace domain. To achieve operational objectives in cyberspace, the Marine Corps is coordinating across multiple departments and agencies to develop a codified, repeatable, and integrated process for providing cyberspace capabilities to the MAGTF. This process will require both offensive and defensive capabilities which are synchronized with external cyberspace organizations that have capabilities and authorities not resident in the MAGTF.

Critical to this process is a cyber national tactical integration (NTI) model that draws on existing national authorities and capabilities to meet emerging cyber requirements from the operating forces. This effort will link the existing cyber capabilities already resident within the MAGTF, such as Radio Battalion, to national agencies and create a more responsive MAGTF support process. Additionally, these cyberspace capabilities, when supported by the larger Marine Corps Intelligence Surveillance Reconnaissance Enterprise, will provide the MAGTF Commander comprehensive and multi-sensor support to cyberspace operations and enable the exploitation, defense, and delivery of fires throughout the cyber domain.

HQMC Intelligence Department, Marine Forces Cyber Command, and other Marine Corps entities and stakeholders have partnered with Marine Corps and other national organizations to develop the required policies to support this critical cyber NTI process. Included in this process is assessing required manpower growth in select cyber-related Marine Operational Specialties, reviewing cyber-related training requirements, research materiel and non-materiel solutions to existing cyberspace capability gaps, and developing initiatives to better access and leverage existing national infrastructure to support the MAGTF.

