

## INDIVIDUAL EQUIPMENT AND WEAPONS

The soldier is the Army's most deployed combat "system" and the most essential weapon in the Army's arsenal. Activated in October 2001, Program Executive Office (PEO) Soldier equips the soldier as a system through centralized development, acquisition, fielding and sustainment of virtually everything the soldier wears or carries. The mission of PEO Soldier is to increase soldiers' combat effectiveness, save soldiers' lives and improve soldiers' quality of life.

PEO Soldier views the individual soldier as the center of the Army, the corner-

stone on which all Army operations are built. This view motivates PEO Soldier to meet the needs of individual soldiers in order to support the larger view of the Army. To accomplish this, PEO Soldier solicits and uses soldier feedback to guide the development and fielding of new equipment.

Since its founding, PEO Soldier has grown tremendously in both the scale of operations and the scope of its products. To retain and increase its organizational standard of excellence, PEO Soldier will be undergoing a major restructuring over the course of the next year. Part of this reorganization will integrate the rapid fielding initiative (RFI) into a G-4 directorate in order to institutionalize the benefits of RFI

across the PEO Soldier portfolio. In addition, several of the project manager positions will be refocused to a smaller range of products. While no products will be removed from PEO Soldier's portfolio, these changes will allow for a faster, more focused response.

As the demands of warfighting change and new technologies evolve in response, PEO Soldier stands ready to equip soldiers with the best gear in the shortest time, to support the deployment of soldiers wherever our global interests dictate. The technologies PEO Soldier develops and the equipment PEO Soldier fields are crucial components in meeting the strategic, operational and tactical challenges of today's soldier and the soldier of the future. PEO Soldier products are used by every American soldier, every day, everywhere in the world.

### Rapid Fielding Initiative (RFI)

PEO Soldier launched the rapid fielding initiative (RFI) in 2002 to streamline the process for distributing equipment to deploying units and ensure that all soldiers—active and reserve components—were outfitted with the most advanced individual and unit equipment available, providing significant improvements to soldier combat effectiveness, survivability and operational quality of life. To date, RFI has equipped nearly 1.5 million deploying soldiers.

RFI coordinates the activities of three closely aligned cells responsible for the planning, logistics support and fielding operations associated with the expeditious equipping of deploying soldiers and units. The focus of fielding operations has transitioned over time from immediate-response, in-theater fielding efforts to scheduled, home-station fielding events coordinated to minimize the impact on predeployment training.

Equipment fielded by RFI currently consists of 73 items procured by the project managers that provide capabilities enhancements essential to combat operations. Items currently fielded by RFI include individual soldier mission-essential equipment, such as the advanced combat helmet and ballistic eye protection, and organizational force protection/mobility items, such as urban terrain equipment and infrared strobes. The list also includes critical unit lethality enhancement items such as improved ammunition packs, small binoculars and advanced weapons optics.

As soldiers deploy for their second, third or fourth combat tour, RFI has implemented the Lean Six Sigma (LSS) processes to minimize duplicative fieldings of equipment. The process, called lean fielding, saved the Army more than \$84 million in its first 12 months. RFI's latest LSS project for accountability transfer automates



*The Land Warrior system supports individual, close combat operations.*

support systems and reduces the administrative workload on commands in updating property books and effecting lateral transfers of equipment to individual clothing records. Furthermore, RFI planning and fielding activities fully support and complement the Army force generation operating cycle.

PEO Soldier is restructuring in order to institutionalize the RFI process through the establishment of a G-4 directorate. This is aimed at achieving the greatest synergism and efficiencies from the acquisition and fielding cells within the project management and director offices to field the soldier as a system. This transformation also encompasses a reduction of the historical reliance on supplemental funding for soldier equipment in order to provide more predictable requirements over time and facilitate programming of funds to support the modernization process.

### **Project Manager Soldier Warrior**

Project Manager Soldier Warrior supports soldiers through the acquisition of integrated soldier systems. Current systems include Land Warrior, Ground Soldier, Mounted Soldier and Air Warrior. Project Manager Soldier Warrior product managers develop and integrate components

into complete systems designed to increase combat effectiveness, decrease combat load and improve mission flexibility.

**Land Warrior** is a first-generation, integrated, modular fighting system for soldiers engaged in close combat operations. Land Warrior combines computers, lasers, navigation technology and radios with other mission equipment to substantially improve individual situational awareness. The systems approach optimizes and integrates multiple capabilities with minimal impact on combat load and logistical footprint. During the surge phase of Operation Iraqi Freedom, the 4th Battalion, 9th Infantry Regiment (4-9 IN), of the 4th Brigade, 2nd Infantry Division, was equipped with 229 Land Warrior ensembles, which are worn by the unit's leadership down to the team-leader level, and 133 Mounted Warrior ensembles for Stryker crew members. The 4-9 IN became the first unit in the history of warfare to employ a digitally networked combat soldier in theater. The soldiers who used the system from May 2007 to June 2008 reported that the reliability in combat situations surpassed all expectations and that the added capabilities are invaluable. As a result of soldiers' success with Land Warrior in combat, the Army received supplemental funds for an approved operational needs

statement to equip the 5th Brigade, 2nd Infantry Division Stryker Brigade Combat Team, in fiscal year (FY) 2009 and equip the 3rd Battalion, 5th Special Forces Group, in FY 2010.

The **Ground Soldier Ensemble (GSE)** of the Ground Soldier System builds upon Land Warrior as an integrated dismounted soldier situational awareness system for use during combat operations. The system provides unparalleled situational awareness and understanding to the dismounted soldier, allowing for faster and more accurate decision making in the tactical fight. This translates into soldiers being at the right place at the right time with the right equipment, making them more effective and more lethal in the execution of their combat mission.

The centerpiece capability of GSE is the ability to graphically display the individual soldier's location on a digital medium against a geo-referenced image as the background. Additional soldier locations will also be graphically displayed through the Army Battle Command System, connecting the soldier to the network through a radio that will send and receive information from one to another. These radios will also connect the combat soldier to higher-echelon data and information products to assist the combat soldier in decision making and situational understanding. All of this will be integrated on a graphic user interface that is user-defined, allowing soldiers to easily see, understand and interact in the method that best suits the user's particular mission.

The physical subcomponents of GSE include a display to provide the soldier's information, a computer to process and populate the information on the screen, an interface device that allows user interaction with the system, a power source, an operating system to provide the system functionality and run tactical applications and Battle Command, and a networked radio transmitter/receiver device to send and receive information. As a system worn by the combat soldier, size and weight must be kept to a minimum while retaining the ruggedness required for combat operations including water immersion. The GSE must have a slim and flexible form that can accommodate the "shooter's preference" method of employing the system in accordance with the variety of different mission profiles and soldier personnel equipment configurations.

GSE entered the technology develop-

ment phase in February 2009.

The **Mounted Soldier System (MSS)** is the next generation of Mounted Warrior. It will provide combat vehicle crew members and platform commanders with increased mission effectiveness on the network-centric battlefield in the areas of command and control, situational awareness, communications, force protection, survivability, mobility and sustainability. The MSS provides the combat vehicle commander increased capabilities to conduct offensive and defensive operations. MSS consists of three systems (cooling, cordless communications and display) that allow the crew member to reduce heat stress, communicate wirelessly with the vehicle's intercom and radios, and remotely display the vehicle's displays for Force XXI Battle Command, Brigade-and-Below (FBCB2), Remote Weapon Sight, Driver's Enhanced Vision System and other platform-centric video assets.

**Air Warrior (AW)** is a modular, integrated, rapidly reconfigurable combat aircrew ensemble that saves lives and maximizes Army aircrew mission performance. The Air Warrior system equips the soldier who operates the aircraft and closes the capability gap between human and machine. More than 16,000 Army aircrew members have been equipped with the system. Air Warrior increases personal protection and



*Air Warrior*

mission performance while decreasing weight and bulk. The system consists of:

- A primary survival gear carrier that includes first aid, survival, signaling and communications equipment.
- Body armor tailored for the unique requirements of the aircrew member.

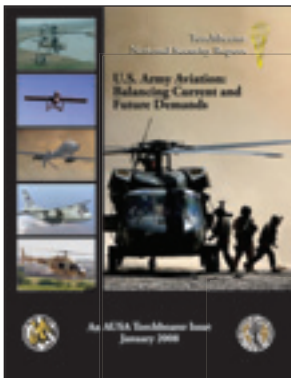
■ The Aircrew Integrated Helmet System.

■ Overwater survival equipment including an underwater breathing device and life raft.

■ The Microclimate Cooling System (MCS), which includes a cooling garment worn under chemical protective and duty uniforms that increases mission endurance under extreme heat by more than 350 percent. The MCS has been adopted for use by ground forces including Stryker, Abrams, Bradley, M9 ACE, the Navy, the Marine Corps and foreign militaries, with more than 16,000 systems fielded to date.

The **Electronic Data Manager (EDM)**, a touchscreen kneeboard computer, enables the aircrew member to quickly plan missions and react to mission changes in flight. The EDM, compatible with night-vision goggles and readable in direct sunlight, features a moving map via a global positioning system, Blue Force Tracking-Aviation capability and Windows-compatible software. More than 2,700 EDM systems have been fielded to the Army, Navy, Marine Corps and foreign militaries.

The **Aircraft Wireless Intercom System (AWIS)** provides wireless aircrew communications. AWIS allows hands-free voice communication between crew members and provides the first true aircraft intercom capability for medical evacuation he-

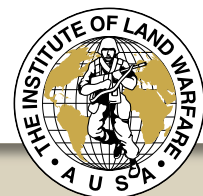


## Help AUSA continue to be the Voice for America's Army

The Institute of Land Warfare (ILW), the educational arm of AUSA, publishes papers and Torchbearers that educate the Administration, Congress and the general public on issues directly affecting America's Army and our Soldiers.

The printing of these papers costs money and ILW, as a non-profit, must depend on contributions. Help ILW continue to ensure that America has the strongest Army possible and that our Soldiers are taken care of.

**For more information, please contact Millie Hurlbut at 703-907-2679 or [mhurlbut@ausa.org](mailto:mhurlbut@ausa.org).**





licopter personnel during rescue hoist and dismounted patient recovery missions in close proximity to the aircraft. The AWIS consists of an aircraft-mounted interface unit and mobile equipment units worn by each member of the aft crew. The AWIS enables omnidirectional simultaneous communications among crew members within the aircraft network out to approximately 200 feet of the center of the aircraft.

### Project Manager Soldier Sensors and Lasers Provisional (PM SSL)

Project Manager Soldier Sensors and Lasers Provisional (PM SSL) provides soldiers with improved lethality, mobility and survivability in all weather and visibility conditions. Soldier-borne sensors and lasers enhance the soldier's ability to see in all battlefield and lighting conditions, to acquire objects of military significance before the soldier is detected, and to target threat objects accurately for engagement by soldiers or guided munitions. These systems provide critical, on-the-ground direct support to U.S. forces.

### Soldier Sensor Maneuver Support (MVN)

Maneuver Support (MVN) is the branch of SSL responsible for the products that enhance the operational capabilities of soldiers with night-vision aiming devices.

The AN/AVS-6 Aviator's Night-Vision Imaging System (ANVIS) is a helmet-mounted, direct-view, third-generation image-intensification piloting device that enables flight operations under very low ambient light conditions. The latest version, AN/AVS-6(V)3, is capable of operating down to near-starlight conditions. The system incorporates 25 mm eye relief; dual-span adjustment knobs; gated power supply; either filmless or thin-film tube designs; a fine-focus objective lens; and a low-profile battery pack. The low-light sensitivity is a 10 percent improvement over its predecessor and a 35 to 40 percent improvement over the earliest ANVIS.

The AN/PVS-14 Monocular Night-Vision Device (MNVD) is a lightweight



AN/PVS-14

head- or helmet-mounted image-intensification device that can also be mounted to the M16/M4 receiver rail. It is designed to be used in conjunction with rifle-mounted aiming lights. The AN/PVS-14 provides



PAS-13 thermal weapons sight mounted on an M-240B machine gun

soldiers with the ability to conduct nighttime operations including driving, maneuvering, first aid, map reading and maintenance. The latest AN/PVS-14 operates on a single AA cell.

**Multifunctional Aiming Lights (MFAL)**, including AN/PEQ-2A, AN/PEQ-15 and AN/PEQ-15A, are used in conjunction with night-vision goggles to engage targets. MFAL devices contain infrared aiming lights and illuminators as well as visible pointers in a single, lightweight, compact package. When zeroed to the weapon, these devices provide an invisible, continuous infrared beam along the weapon's line of fire that is effective to the maximum firing range of the weapon.

The AN/PEQ-14 Integrated Laser/White Light Pointer adds the functions of a flashlight into an MFAL device for an effective small-arms lightweight integrated targeting system.

The AN/PVS-10 Night-Vision Sniper Night Sight (SNS) is a lightweight, weapon-mounted, passive image-intensification device designed primarily for use by snipers for day and night operations. A select lever permits the user to change the mode of operation between day and night. The SNS employs a black-line reticule that can be illuminated for night operation. A rail mounting interface allows quick mounting or dismounting from the weapon.

The AN/PVS-26 Clip-On Sniper Night Sight is a lightweight, clip-on, image-intensified night sight for the M110 Semi-Automatic Sniper System that mounts in front of the day optic sight. The AN/PVS-26 employs a variable gain image tube that can be adjusted by the sniper depending on ambient light levels. The AN/PVS-26 provides the sniper the capability to accurately acquire and engage targets at low light levels without the need to remove the day optic.

The AN/PSQ-23 Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF) is a lightweight, multifunctional laser system designed to operate on a variety of individual weapons, crew-served weapons and weapons plat-

forms, including the M-4/M16, the M107 Sniper Rifle, the M110 Sniper Rifle, the Sniper Tripod and the Stryker Remote Weapons Station. It combines the functionality of a laser rangefinder, infrared aiming laser, infrared laser illuminator, digital compass and visible pointer into one package. STORM can be connected to an external global positioning system (GPS) device to determine distance to targets. On crew-served weapons, STORM provides the critical range component to the fire control for achieving high probabilities of first-shot kills.

The AN/PSQ-20 Enhanced Night-Vision Goggle (ENVG) provides the soldier with enhanced mobility and situational awareness in all weather and battlefield obscurant conditions. ENVG is a helmet-mounted device that combines long-wave infrared sensor data with passive low-light-level image-intensification into an integrated display. The resultant image takes advantage of each sensor's strengths while minimizing individual sensor limitations.

The AN/PAS-13 Family of Thermal Weapon Sights (TWS) enables soldiers with individual and crew-served weapons to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants day or night. The TWS uses forward-looking infrared (FLIR) technology and provides a standard video output for training, image transfer or remote viewing. Light, medium and heavy variants provide viewing to the maximum effective range of the designated weapon.

The TWS Head Mounted Display (HMD) integrates with the AN/PAS-13 Thermal Weapon Sight (TWS) to provide a remote viewing capability for TWS and vehicle-mounted imagery. It allows a more comfortable firing position of the TWS on the M2/MK19 weapon systems. The HMD operates on four AA cells and weighs less than 8 ounces. The system is designed to operate with Army standard-issue protective eyewear, providing a minimal visual obscuration that maintains or enables the soldier's overall situational awareness.

**Soldier-borne Sense Through the Wall (STTW)** provides soldiers with the capability to detect, locate and “sense” personnel with concealed weapons or explosives behind obstructions from a stand-off distance. Currently in development, STTW will be employed by soldiers in military operations on urban terrain and subterranean environments to locate and classify threats.

**Gunfire Detection Systems (GFDS)** are lightweight soldier-wearable sensors that accurately locate and engage enemy snipers. The sensor locates the enemy gunfire through the acoustic signatures associated with the fired round to produce a range and bearing back to the threat. This information allows the soldier to conduct battle drills in response to the sniper’s actual location.

The Family of Flashlights (FoF) **Weapons Mounted Light (WML)** is one of the four components of the FoF that include the WML, the Tactical Handheld Light, the Hands-Free Helmet Light and the Crew-Served Weapons Light. The WML is a small (7 inches or less), lightweight (10 ounces or less with batteries) white light that can be weapon-mounted or handheld. The WML is employed on small arms, including the M16A4 modular weapons, M4/M4A1, M249 and M240B. The WML has dual activation controls, includes an infrared capability and is designed to operate on two DL123 batteries.

### Soldier Fire Support Sensors (FS)

Soldier Fire Support Sensors (FS) is the branch of PM SSL that supports the research and development of target designation systems.

The AN/PED1 **Lightweight Laser Designator Rangefinder (LLDR)** enables fire-support teams and forward observers to accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for engagement with precision munitions. The two primary components are the **Target Locator Module (TLM)** and the **Laser Designator Module (LDM)**. The TLM can be used as a stand-alone device or in conjunction with the LDM. The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, selective availability/antispoofing module, GPS electronics and digital export capability.

The Laser Targeting Locating Systems **Mark VII** and **Viper (V21)**, as well as the



**Mark VII E Laser Targeting Locating Module**, provide fire-support teams and forward observers with daylight and limited night capability to observe and accurately locate targets for voice transmission of target data to the fire-support command, control, communications, computers and intelligence (C<sup>4</sup>I) system. They can be handheld or tripod-mounted. Each incorporates an eye-safe laser rangefinder and a digital magnetic compass to determine range, azimuth and vertical angle from the observer to targets of interest.



The Mark VII and Viper systems can compute and display target location when connected to a GPS device. The Mark VII E has a built-in GPS device and an uncooled FLIR for improved night capability.

### Project Manager Soldier Protection (PM SP)

PM SP develops and fields advanced soldier protection products, comfortable uniforms to enhance mission effectiveness and improved parachute systems. These products are designed to protect soldiers and allow them to operate in any conditions.

### Product Manager Core Soldier (PM CS)

Product Manager Core Soldier (PM CS) supports soldiers in operational environments and improves their lethality, survivability, situational awareness, health, safety, mobility and sustainability by providing safe, durable and operationally effective individual and unit equipment. PM CS enhances survivability through technologically advanced tactical and environmental protective clothing, individual chemical protective gear, and personnel parachutes and other airdrop equipment.

**Modular Lightweight Load-Carrying Equipment (MOLLE)** provides today’s soldier with a modular, flexible, load-carrying system that can be tailored to meet mission needs. MOLLE consists of a rucksack with removable pockets and a fighting load carrier that can accept removable pouches for rifle, pistol, grenade, squad automatic weapon and medical items. For short-duration missions, there is an assault pack and a waist pack. The modularity allows individuals or commanders to tailor

the load to meet mission needs.

The **Army Service Uniform (ASU)** provides a basic set of components that allows soldiers to dress from the lowest to the highest end of service uniforms with little variation required, thus reducing the need for numerous uniforms and reducing the burden on soldiers to have multiple service uniforms. The ASU is based on the Army blue uniform, and the men's and women's coats from that uniform are unchanged.

The belted trousers and slacks with a traditional low waistline will be available for daily wear. The high-waist men's trousers traditionally worn with suspenders will be retained for wear with the Army blue mess uniform. The fabric of the coat, trousers, slacks, and skirt is a 55-percent polyester and 45-percent wool blend that does not require special care. A new white herringbone shirt will be for daily wear, and a commercial white shirt will be worn for ceremonial and formal occasions. Officers and noncommissioned officers will wear gold stripes on the trousers/slacks. Junior enlisted soldiers (specialist and below) will have trousers/slacks without stripes on the legs. The beret will be the standard headwear worn with the ASU. Officers and noncommissioned officers (corporal and above) may wear the service cap as an optional item. Officers and enlisted soldiers will be



authorized to wear overseas stripes on the right sleeve. Enlisted service stripes have been reduced in size and will be worn on the left sleeve. The new Combat Service Badge will be worn in place of the Former Wartime Service Shoulder Sleeve Insignia to represent combat service.

There are several uniforms being fielded by PM CS that now offer a fire-resistant capability. These include the **Fire-Resistant Army Combat Uniforms (FR ACUS)**, the **Advanced Army Combat Uniform (A<sup>2</sup>CU)**, the **Improved Combat Vehicle Crewman Coverall (iCVC)** and the **Army Combat Shirt (ACS)**.

The **T-11 Personnel Parachute System** provides the airborne soldier with the next-generation tactical personnel parachute system and represents the first complete modernization of the tactical parachute system since the early 1950s. The T-11 parachute system includes a newly designed main canopy as well as a completely redesigned reserve parachute (T-11R) and an integrated harness assembly. The T-11 parachute system is designed to reduce soldier injury rates with a slower rate of descent, reduced opening shock and reduced oscillations. The T-11 can accommodate a higher jumper weight than



*The Generation III extended cold-weather clothing system*



the T-10D it is designed to replace.

The **Maneuverable Canopy 6 (MC-6)** provides the airborne soldier with a new static line-deployed, steerable parachute system. The MC-6 has several improvements designed to reduce soldier injury rates. The MC-6 has a lower opening shock, reduced oscillation, a lower rate of descent for greater safety, increased forward drive and a better turn ratio than the MC1-1C. The MC-6 parachute system combines a new main canopy with a completely redesigned reserve parachute and an integrated harness assembly, both of which are common to the T-11. The MC-6 can accommodate a higher jumper weight than the MC1-1 series it is designed to replace.

The **Generation III Extended Cold Weather Clothing System (GEN III ECWCS)** is a 12-component, versatile, multilayered system that provides soldiers the capability to tailor to mission and environmental requirements. The GEN III ECWCS system consists of lightweight undershirt and drawers; midweight shirt and drawers; fleece cold-weather jacket; wind cold-weather jacket; soft-shell jacket and trousers; extreme cold/wet-weather jacket and trousers; and extreme cold-weather parka and trousers. The new materials offer a greater range of performance and environmental protection and reduce overall bulk and weight, providing greater versatility in meeting soldiers' needs. GEN III ECWCS has proven itself as a combat enabler in Afghanistan.

The **Fire Resistant Environmental Ensemble (FREE)** is a multilayered, versatile all-climate system that allows combat vehicle and aircrew members to adapt to varying mission requirements and environmental conditions. Most importantly, it is fire-resistant. The FREE is comfortable and ergonomically efficient for wear in the confines of aircraft and armored vehicles. The system consists of male and female under-

garments, base layer, midweight under layer, light weather outer layer, intermediate weather outer layer, cold-weather gloves, extreme/wet-weather layer, rigger belt and wool socks. It will replace the aviation cold-weather clothing system (ACWCS). The FREE is color-compatible (universal camouflage pattern and foliage green) with ground soldier uniforms. New materials offer a greater range of breathability and environmental protection, providing greater versatility in meeting soldiers' needs.

### **Product Manager Soldier Survivability (PM SSV)**

Product Manager Soldier Survivability (PM SSV) develops and fields state-of-the-art force-protection equipment that defeats ballistic and fragmentation threats in theater. PM SSV provides superior body armor, helmets and other gear that greatly reduce the threat of serious injury.

**Interceptor Body Armor (IBA)** is a joint service item designed and developed to incorporate the requirements of the Army and Marine Corps. Interceptor is the model name for modular, multiple-threat body armor. It has gone through nine improvements since it was introduced. The **Outer Tactical Vest (OTV)** and the streamlined and lighter-weight, quick-release **Improved Outer Tactical Vest (IOTV)** protect against fragmentation and 9 mm rounds. Attachable throat and groin pieces expand the ballistic protection, and webbing attachment loops across the front and back of the vest accommodate modular lightweight load-carrying equipment pouches.

The **Deltoid and Axillary Protector (DAP)** is a component of IBA that provides additional protection to the upper arm and underarm areas from fragmentary and 9 mm projectiles. DAP was developed as an add-on to the OTV to protect soldiers from the threat of improvised explosive devices in current operations. This auxiliary pro-

TECTIVE capability is integrated into the IOTV.

The **Enhanced Small Arms Protective Insert (ESAPI)** plates provide multiple-hit protection to the chest and back against various small-arms threats, including armor-piercing rounds.

The **Enhanced Side Ballistic Insert (ESBI)** plates provide additional ballistic protection for side and underarm areas not covered by ESAPI. The ESBI can withstand a small-arms hit, including armor-piercing rounds. ESBI plates are attached to the OTV with a carrier assembly that employs webbing on the front and back. ESBI plates can be further secured through incorporation with the DAP. The IOTV includes integrated ESBI plate carriers.

The **X Small Arms Protective Insert (XSAPI)** plate was designed to meet near-term emerging threats and will provide additional ballistic protection against more lethal small-arms rounds.

The **Advanced Combat Helmet (ACH)** comes in four shell sizes and includes a modular pad suspension system, retention system and nape pad. The modular pad suspension system improves blunt-force impact protection, stability and comfort. The cotton/polyester retention system, a four-point design, allows for quick adjustment for head size. The nape pad attaches to the retention system, improving comfort and stability and providing protection against 9 mm and fragmentation threats to the nape area of the neck. The ACH weighs 2.9 to 3.8 pounds, depending on size. The helmet cover is available in the universal camouflage pattern.

The **Helmet Sensor** is a small, lightweight, low-power sensor suite that mounts to the Advanced Combat Helmet or the Combat Vehicle Crewman Helmet. The helmet sensor detects, measures, and records impact and blast overpressure associated with improvised explosive devices (IEDs) and other events that may cause concussions in an operational environment. The Army is using two versions of the helmet sensor, one that mounts externally to the rear of a helmet and one that mounts internally under the padding in the crown of the helmet. Both sensors continuously and automatically collect data, recording peak overpressure from IED blasts, crashes, blunt impact and ballistic events. This information can potentially be used to provide better and more effective medical treatment to injured soldiers.

### **Project Manager Soldier Weapons (PM SW)**

Project Manager Soldier Weapons (PM SW) supports soldiers through enhancement of current systems and development of next-generation weapons technology. It focuses on ensuring that soldiers are equipped with world-class weapons sys-



*Interceptor body armor consists of an outer vest, ballistic plates and attachments that stop or slow bullets and fragments.*



*Lighter-weight, quick-release improved outer tactical vest (IOTV)*



*Advanced combat helmet (ACH)*



tems, ammunition, and associated target acquisition and fire-control products today and in the future.

### Product Manager Individual Weapons

PM IW is responsible for research and development of current and future rifles, carbines, pistols, shotguns, grenade launchers, small-arms ammunition and related target acquisition/fire-control products.

The **XM25 Counter Defilade Target Engagement System** is a next-generation weapon still in development. The XM25 will fire 25 mm munitions including high-explosive airburst (HEAB), armor-piercing, antipersonnel, nonlethal, training and breaching rounds. The XM25 incorporates full-solution target acquisition/fire control that integrates a thermal sight, 2x direct-view optics, a laser rangefinder, compass, fuze setter, ballistic computer and internal display. The XM25 has a 500-meter range against point targets and 500- to 700-meter range against area targets and is capable of defeating hidden targets.

The Army's **M9 9 mm Pistol** is a semiautomatic, double-action pistol that is lighter, more lethal and safer than its predecessors. It is the primary sidearm of crew-served-weapon crew members and others who have a personal defense requirement, such as law enforcement personnel, unit leaders and aviators.

The **M16A4 5.56 mm Rifle** is a flat-topped M16A2 that incorporates a military standard 1913 rail on top of the weapon's receiver, adding operational flexibility.

The **M4 5.56 mm Carbine** replaces the M3 submachine gun, select M9 pistols and M16A2 rifles for unit leaders, crew-served gunners, vehicle crews, radio operators, light infantry, Airborne (Air Assault), combat engineers and others. It provides improved firepower compared with the M3 and M9, and it allows mounting of the latest generation of fire-control accessories without tools. It is 1 pound lighter than the M16, offering improved portability.

The **M110 Semi-Automatic Sniper System** is a 7.62 mm sniper rifle that brings a semiautomatic capability to sniper teams. The M110 incorporates a 3.5x10 scope with illuminated Mil-reticle and rapid fire/reload, and it comes with a suppressor. The system is particularly effective in urban areas where there are multiple targets and frequent close-combat situations.

The **M107 .50-caliber Semi-Automatic Long-Range Sniper Rifle (LRSR)** is a commercial off-the-shelf, antimateriel and countersniper semiautomatic, direct-line-of-sight .50-caliber rifle. It can complete missions out to 2,000 meters that cannot be accomplished with current sniper rifles. It supplements a sniper role by supporting combat operations by precisely engaging

high-value targets, with greater firepower and standoff ranges to improve sniper survivability.

The **M150 Rifle Combat Optic** increases the probability of a first-round hit at distances out to 600 meters with the M4 carbine, M16 rifle and the M249 Squad Automatic Weapon. The optic allows soldiers to rapidly make the transition between long-range and close-quarters engagements without degrading the ability to conduct reflexive fire techniques.

The **M320 Grenade Launcher Module (GLM)** is a 40 mm low-velocity grenade launcher weapon module that will replace all M203 series grenade launchers mounted on the M16/M4 series of rifles and carbines. The XM320 is intended to be lighter, safer and more reliable than current man-portable grenade-launching systems, and will provide day and night firing capability. The M320 can also be converted without tools to operate in a stand-alone mode.

The **M26 12-Gauge Modular Accessory Shotgun System (MASS)** provides warfighters with a lethal, nonlethal, and door-breaching capability through a 12-gauge accessory shotgun attached to the primary/host weapon. The system attaches underneath the barrel of the primary/host weapon and provides a capability equivalent to a stand-alone shotgun without carrying a second weapon. The M26 can also be converted without tools to operate in a stand-alone mode.

### Product Manager Crew Served Weapons (PM CSW)

PM CSW is responsible for research and development of current and future light and heavy machine guns, grenade launchers, sniper systems, small-arms ammunition, and related target acquisition/fire-control products.

The **XM806 Light Weight .50-Caliber Machine Gun** is a next-generation weapon, capable of firing all of the current .50-caliber ammunition in the inventory. This includes, but is not limited to, the standard M33 ball round, the M8 armor-piercing incendiary, the M903 sabot light-armor penetrator, and the MK211 multipurpose round that penetrates, fragments and starts fires. The XM806 weapon system is half the weight and has a quarter of the recoil of the M2, providing soldiers with the punch of a .50-caliber machine gun in the footprint of a 7.62 mm weapon system.

The **M249 5.56 mm Squad Automatic Weapon (SAW)** serves as an automatic rifle and light machine gun for infantry squads, as well as providing light machine-gun capabilities in combat service and combat service support units. The M249 SAW is a lightweight, air-cooled, belt-fed 5.56 mm weapon with fixed headspace and a quick-change barrel feature. The weapon can be fired from the shoulder, bipod/tripod-



M16A4 rifle



Compatible with the latest weapon-mounted optics, accessories and ammunition, the M16A4 weighs 8.5 pounds with a loaded 30-round magazine and field strips easily.



*5.56 mm M4 carbine*



*M107 .50-caliber semi-automatic long-range sniper rifle (LRSR)*



*M320 grenade launcher module (GLM)*



mounted or vehicle-mounted positions. The M249 SAW weighs 17 pounds (23.96 pounds with 200-round box magazine of ammunition) and has a maximum effective range of 1,000 meters against area targets. It replaced the M16 series rifle in the designated automatic rifle role and the M60 machine gun in the light machine gun role.

The **MK19 40 mm Grenade Machine Gun (GMG)** is an air-cooled, belt-fed, blow-back-operated, fully automatic weapon system. It has a maximum effective range of 2,200 meters for area targets and 1,500 meters for point targets. It fires standard high-velocity 40 mm grenade cartridges, including M383 high-explosive antipersonnel rounds, high-explosive dual-purpose (antipersonnel and armor-piercing) rounds and training practice rounds. The MK19 supports the soldier in offensive and defensive roles by delivering a heavy volume of close, accurate and continuous firepower against enemy personnel and lightly armored vehicles. It can be mounted on a tripod or on multiple vehicle platforms and is the primary suppressive weapon for combat support and combat service support units.

The **M240B 7.62 mm Medium Machine Gun** is a ground-mounted, gas-operated, crew-served machine gun. It is a variant of the M240 mounted on Bradley fighting vehicles and Abrams tanks, reconfigured for ground applications with buttstock, bipod, iron sights and forward-rail assemblies. The M240B delivers more energy to the target than the smaller-caliber M249 SAW. The cyclic rate is 550 to 650 rounds per minute, and the weapon's maximum effective range against area targets is 1,800 meters. It comes with an accessory rail integrated with the top cover that is used to attach sighting devices. It is issued to infantry, armor, field artillery and combat engineer units that require medium-support fire; it replaces the ground-mounted



M60 machine gun.

The **M240L** is the result of the M240 Weight Reduction program. The M240L is 6.5 pounds lighter than the M240 and 5.1 pounds lighter with the M240B, without losing any reliability or functionality. Weight savings came through the innovative use of titanium for the construction of the system.

The **M240H 7.62 mm Machine Gun (Aviation Version)** is designed for aviation application and demonstrates reliability equal to that of the M240B. It delivers two minutes of continuous suppressive fire and is removable for use in a ground role. It replaces the M60D machine gun for the UH-60 Black Hawk and CH-47 Chinook helicopters as part of their defensive armament systems.

The **M2E2 Quick Change Barrel Kit Program (M2E2)** is a modification of the standard M2 that is easier and safer to use, and eliminates the need for headspace and timing. The current M2 machine gun design requires the operator to properly set the headspace and timing before firing, after assembly and after barrel replacement.

Improper adjustment of headspace and timing can cause gun malfunctions, parts damage or personnel injury (including death). The current need to set headspace and timing negatively affects survivability and mission accomplishment as the warfighter must be exposed to enemy fire for extended periods of time while performing barrel-changing procedures. The M2E2 modification will provide warfighters with the ability to quickly change the barrel without the need to reset headspace and timing by implementing a fixed headspace and timing operating system. Other upgrades include the quick-change barrel system, flash hider and carrying handle. The flash hider reduces muzzle flash, making the M2 night-vision friendly. All of these capabilities ensure that commanders have constant firepower and less downtime.

### Product Manager Remote Weapons Systems (PM RWS)

PM RWS is responsible for the research and development of weapons stations that are operated via a remote link, thus reducing risk to the soldier.

The **Common Remotely Operated Weapon Station (CROWS)** is a stabilized mount that contains a sensor suite and fire-control software, allowing on-the-move target acquisition and first-burst target engagement without requiring the soldier to leave the safety of the vehicle. The CROWS sensor suite includes a video camera, thermal camera, and a laser rangefinder, enabling accurate target detection and engagement under day and nighttime conditions. CROWS is designed to mount on any tactical vehicle, and supports the MK19 grenade machine gun, .50-caliber M2 machine gun, M240B machine gun and the M249 squad automatic weapon (SAW). CROWS is a force multiplier that provides improved survivability and lethality to the warfighter.



Common remotely operated weapons system (CROWS)