tem. A commercial two-year warranty is provided.

THT provides tri-band satellite communications capable of supporting a variety of worldwide missions and is interoperable with all tri-band satellite terminals and teleport earth terminals. Setup/teardown time is 30 minutes.

The USARPAC Tri-Band Satellite Terminal (U-TST) is a Humvee (M1113) prime mover-mounted satellite terminal hub, capable of supporting C-, X- and Ku-band frequencies. The U-TST is capable of using the LHGXA tracking antenna and tows a tactical quiet generator (TQG), and supports GMF as well as C4ISR communications when operating with the single shelter switch base-band suite of equipment.

The Mobile Deployable Ku-Band Earth Terminal (DKET) is a commercial off-the-shelf nondevelopmental item Ku-band prime mover-mounted satellite communications terminal capable of supporting a variety of worldwide missions. The DKET operates with INTELSAT, EUTELSAT, PANAMSAT and DOMSAT. DKETs provide high-bandwidth inter/intratheater links over commercial satellites, appropriate for camp, base or station where heavy use of voice, data and video services is required.

Warfighter Information Network-Tactical (WIN-T) is the Army’s communications system for reliable, secure and seamless video, data, imagery and voice services that enables decisive combat actions. It is focused on moving information in a manner that supports commanders, staffs, functional units and capabilities-based formations. It is optimized for offensive and joint operations so that the theater combatant commander will have the capability to perform multiple missions simultaneously with campaign quality.

GROUND COMBAT SYSTEMS

The Program Executive Office–Ground Combat System (PEO GCS) serves as the “System of Systems Integrator” of the ground combat systems for the armed forces and leads Army transformation efforts toward future systems while maintaining a current combat-ready force. PEO GCS is a command partner in the TACOM Life Cycle Management Command.

PEO GCS Project Management Offices include Heavy Brigade Combat Team, Joint Lightweight Howitzer, Mine Resistant Ambush Protected Vehicles, Modular Brigade Enhancements, Stryker Brigade Combat Team and Robotics Systems Joint Project Office.

As an example, the Project Manager for the Heavy Brigade Combat Team (PM HBCT) serves as the life-cycle manager for the major combat vehicles in the Army’s heavy forces, including the Abrams, M88, Bradley, M113, M109 and Knight family of vehicles. Combined, these fleets total 32,682 platforms in various stages of their life cycles under PM HBCT’s management purview, and total program funding through fiscal year 2013 of approximately $36.8 billion. PM HBCT’s responsibilities include the design, development, produc-
tion, fielding and sustainment (reset, recap and upgrade) of safe, reliable and lethal ground combat systems.

Product Manager Abrams manages approximately 8,325 platforms within the Abrams family of vehicles, including M1A1, M1A1 AIM and M1A2 SEP tanks, M88A1/A2 recovery vehicles and M104 Wolverine assault bridge.

M1A1, M1A1 AIM and M1A2 SEP Tanks

The M1 Series Abrams Tank provides the Army with mobile, protected firepower and will remain the cornerstone of the Army’s counterattack and containment forces as the Army transforms to the Future Force. The Abrams tank provides soldiers with the lethality, survivability and staying power to successfully close with and destroy enemy forces on the integrated battlefield. The 120 mm main gun on the M1A1 and M1A2, combined with the powerful 1,500-hp turbine engine and special armor, make the Abrams tank particularly suitable for attacking or defending against large concentrations of heavy armor forces on a highly lethal battlefield and for other roles that require shock effect and mobile direct firepower to support Army mission requirements.

Two major programs maintain and recapitalize the Abrams fleet: the M1A2 systems enhancement program (SEP) and the M1A1 Abrams integrated management (AIM) program.

The M1A2 program provides the Abrams with the necessary improvements in lethality, survivability and fighting ability required to defeat advanced threats. It is the Army’s first digitized, direct-fire combat vehicle.

The M1A2 has a digital command-and-control system that provides situational awareness updates to all the other tanks in a unit. Vetronics architecture ties all electronic components in the tank together and provides increased survivability and supportability. The commander’s independent thermal viewer gives it a hunter-killer capacity. The M1A2 also has improved on-board diagnostics that allow the tank to

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2010 ARMY Magazine Photo Contest

Sponsored by the Association of the U.S. Army

The Association of the U.S. Army is pleased to announce its fifteenth annual ARMY Magazine photo contest. Amateur and professional photographers are invited to enter. The winning photographs will be published in ARMY Magazine, and the photographers will be awarded cash prizes. First prize is $500; second prize is $300; third prize is $200. Those who are awarded an honorable mention will each receive $100.

Entry Rules:
1. Each photograph must have a U.S. Army-related subject and must have been taken on or after July 1, 2009.
2. Entries must not have been published elsewhere. Evidence of prior publication of any entry will disqualify it.
3. Each contestant is limited to three entries.
4. Entries may be 300 dpi digital photos, black-and-white prints, color prints or color slides. Photographs must not be tinted or altered. (Send digital photos to jdow@ausa.org.)
5. The minimum size for prints is 5x7 inches; the maximum is 8x10 inches (no mats or frames).
6. The smallest format for slides is 35mm, and slides must be in plastic or paper mounts.
7. A sheet of paper must be taped to the back of each entry with the following information:
   the photographer’s name, Social Security number (for identification and tax purposes), address and telephone number, and caption information.
9. Entries must be postmarked not later than June 30, 2010. Letters notifying the winners will be mailed in September. Entries will not be returned.
10. Employees of AUSA and their family members are not eligible.
11. Prize-winning photographs may be published in ARMY Magazine and other AUSA publications three times.
12. Photographic quality and subject matter will be the primary considerations in judging.

For further information, contact Jeremy Dow (jdow@ausa.org), ARMY Magazine, 2425 Wilson Blvd., Arlington, VA 22201; (703) 841-4300, ext. 204.
troubleshoot itself without any additional special tools or equipment.

Further M1A2 improvements, through the SEP, are under way. The M1A2 SEP is the backbone of the Army’s first digitized division and the counterattack corps of the Army’s current force. It is the only weapon system that can withstand the impact of high-energy warheads and remain lethal in high-mobility and sustained operations. It has integrated combat command and control (IC3), which incorporates Force XXI Battle Command Brigade and Below (FBCB2) to provide command and control and situational awareness.

Its sights use the latest thermal-imaging system (second-generation forward-looking infrared, or FLIR) for increased lethality and survivability. The M1A2 SEP tank takes advantage of computer/electronic industry advances by including improved electronics developed since the introduction of the M1A2.

The SEP package includes a new computerized mass-memory unit and color maps and displays. A thermal management system increases electronic reliability and decreases crew fatigue.

Production deliveries of the M1A2 SEP tank began in September 1999. These vehicles were used extensively during OIF.

The Army must sustain the readiness and reduce the operations and support costs of approximately 4,300 older M1A1 Abrams main battle tanks in its active and reserve component units.

The Abrams Integrated Management Program (AIM) is the recapitalization program for the M1A1 tank. Under AIM, M1A1 tanks are completely disassembled at Anniston Army Depot, Ala. The depot refurbishes many of the tank’s components. The assemblies are then shipped to the Joint Systems Manufacturing Center (JSMC) in Ohio, where General Dynamics Land Systems reassembles the tanks to a zero time/zero miles standard.

The AIM program has fielded tanks to units at Fort Hood, Texas, and in Germany. Annual production now stands at 135 tanks per year and will continue until 2012.

In addition, AIM serves as the venue to apply modifications and upgrades to the tank, including embedded diagnostics. AIM also serves as a means to combat electronic obsolescence by introducing improved line-replaceable units for those that face technical obsolescence. The AIM process also incorporates redesigned hull and turret network boxes.

The M88A2 Heavy Equipment Recovery Combat Utility Lift and Evacuation System (Hercules) is a full-tracked, heavy armored vehicle developed to accomplish safe, effective and independent battlefield recovery operations. It implements swift and effective combat evacuations through the battlefield recovery operations of towing, winching and lifting. The Hercules uses the M88A1 chassis modified to significantly improve towing, winching, lifting and braking characteristics.

It is the primary recovery support for the 70-ton M1 Abrams tank, the Wolverine and other heavy combat vehicles.

The M88A2 includes a 1,050-hp engine; a 35-ton boom; overlay armor; a 140,000-pound, single-line, constant-pull main winch; and a 3-ton auxiliary winch for deploying the main winch cable. When compared to the M88A1, these upgrades improve towing power by 25 percent, lifting capability by 40 percent and winching ability by 55 percent.

The system is in full-rate production and deployment. Fielding began in July 1997, and it achieved first unit equipped in July 1997.

The M104 Wolverine Heavy Assault Bridge (HAB) is an M1A2 Abrams SEP variant and is operated by a two-man crew. The 26-meter bridge can span gaps of up to 24 meters to support heavy maneuver operations at 16 kph.

The bridge is computer-controlled and automatically compensates for minor deviations in launch-site elevation and terrain rack and cant. The crew can launch the bridge under armor in five minutes and retrieve it in less than 10 minutes.

The M104 Wolverine enables decisive
maneuver by allowing units to span tank ditches, road craters and partially damaged bridge sections up to 24 meters wide at combat speeds.

Product Manager Bradley

Product Manager Bradley manages approximately 6,452 M2/3A2, M2/3A2 ODS and M2/3A3 Bradleys and approximately 13,943 M113 series platforms.

The Bradley M2A3 Infantry/M3A3 Cavalry Fighting Vehicle (IFV/CFV) facilitates enhanced command-and-control capabilities, provides mobile protected transport of an infantry squad to critical points on the battlefield and performs cavalry scout and other essential (Bradley-equipped fire-support and Stinger teams) missions in the 21st century. Upgrades in this program include advanced technology in the areas of command and control, lethality, survivability, mobility and sustainability, required to defeat current and future threat forces while remaining operationally compatible with the main battle tank.

The M2/M3 vehicle armament includes the 25 mm M242 Bushmaster cannon, the TOW II missile system and a 7.62 mm M240C machine gun.

The M2A3/M3A3 provides overwatching fires to support dismounted infantry and to suppress and defeat enemy tanks, reconnaissance vehicles, infantry fighting vehicles (IFVs), armored personnel carriers, bunkers, dismounted infantry and attack helicopters. The infantry version (M2) of the A3 Bradley fighting vehicle is used most often to close with the enemy by means of fire and maneuver. The primary tasks performed by the cavalry version (M3) as part of a troop and/or squadron are reconnaissance, security and flank guard missions.

The A3 is the consummate digitized platform, with a core electronics architecture on a 1553 data bus and an improved target acquisition system that includes a full ballistic fire-control package with hunter-killer functionality via a commander’s independent viewer (CIV). Optical improvements also include two second-generation FLIRs and day television cameras, which can be displayed to the squad members in the back of the vehicle via the rear-mounted squad leader’s display. This feature significantly improves the real-time situational awareness for the entire dismounted or mounted crew.

The A3 integrated combat command-and-control (IC3) package incorporates the Army’s digital command-and-control suite of automated messages, overlays and friend-or-foe graphics that meet the Army’s objectives for a fully digitized force. This same digital command-and-control capability was incorporated into the A2 Operation Desert Storm (ODS), including a squad leader’s display for messages and graphics.

The A3 variants reflect the latest iterations of a fighting vehicle family that includes the Bradley M2/M3A0, A1, A2, A2 ODS, IFV/cavalry fighting vehicle (CFV), Bradley fire-support team (BFIST) vehicle and M2A2 ODS engineer vehicle. Additional Bradley variants, based on the associated tracked M270 multiple-launch rocket system (MLRS) chassis, range from command-and-control systems to armored medical treatment vehicles.

The M4 Command and Control Vehicle (C2V) program emerged from lessons learned during Operation Desert Storm. Based on the Bradley family’s MLRS chassis, the M4 C2V is a self-contained platform with onboard support subsystems capable of providing adequate power for mission equipment and NBC protection and environmental control.

Platform components include a primary power unit that can provide 21,000 watts of AC and 4,600 watts of DC power, an antenna compartment that supports a 10-meter nesting mast, a 579-cubic-foot crew/mission equipment compartment, a biochem system (100/200 cubic foot per minute with 1.5 inches of water overpressure) and an environmental cooling unit (40,000 BTU-per-hour cooling).

A March 1994 engineering and manufacturing development contract was followed by three low-rate initial production awards that covered a total of 25 vehicles. The final vehicles covered under that contract were delivered in June 2001.

Although the M4 C2V program was terminated in December 1999 to provide funding for the Army’s new Stryker armored vehicle acquisition, the Army pulled the systems out of storage and issued most of them for combat use during Operation Iraqi Freedom.

The M113 Family of Vehicles (FOV) pro-
vides a highly mobile, survivable and reliable tracked-vehicle platform that, with upgrades, is able to keep pace with Abrams and Bradley-equipped units and is adaptable to a wide range of current and future battlefield tasks through the integration of specialized mission modules. Although not presently in new production, the 14,795 M113 FOV systems now in Army vehicle inventories constitute a significant percentage of present and future heavy division assets.

Recent activities within the M113 FOV focused on upgrading several models of the vehicles to meet or exceed the mobility characteristics of the supported maneuver force. The most recent upgrade to see wide fielding is the A3 reliability improvement for selected equipment (RISE). RISE provides various derivatives within the FOV with major performance improvements in mobility, reliability and survivability through installation of a 275-hp 6V53T engine with an X-200-4A transmission.

Paladin/FAASV: The M109A6 Paladin 155 mm self-propelled Howitzer provides the primary indirect fire support to modular HBCIs and armored cavalry regiments. Like the earlier M109 models, the M109A6 Paladin is a fully tracked, armored vehicle. The enhanced Paladin configuration is achieved through extensive modifications to existing M109A2/A3 vehicle hulls and

Product Manager Fire Support Platforms
Product Manager Fire Support Platforms manages approximately 2,582 platforms, including the M109A6 Paladin/M992A2 FAASV System, the Paladin/FAASV Integrated Management (PIM) program, the M707/M1200 Knight family of vehicles, and the M7/A3 Bradley Fire Support Team (BFIST) vehicles.

Coupled with reconfiguration of the driver’s station and several other vehicle sub-systems, these improvements provide battlefield mobility commensurate with the supported Abrams/Bradley maneuver force. Moreover, the increased performance provided by this and other upgrade packages permits a range of enhanced survivability options.
the subsequent introduction of an entirely new turret structure. The Paladin includes an onboard Paladin Digital Fire-Control System (PDFCS) that provides ballistic computation, weapon control, a vehicle location/navigation system, secure radio communications systems, an improved M284 cannon and M182A1 gun mount, automotive improvements, improved ballistic and nuclear-biological-chemical protection, driver’s night-vision capability, and built-in test equipment. Additional chassis upgrades include a remotely actuated travel lock (for quicker replacement and displacement), longer torsion bars (to help support the new turret) and a low-heat rejection engine with an improved cooling system. Described as the first digitized combat vehicle in the Army’s inventory, the Paladin has improved responsiveness, survivability, lethality and reliability compared to the earlier M109s.

A parallel U.S. Army recapitalization effort was seen in the M992A2 Field Artillery Ammunition Supply Vehicle (FAAV). The basic M992A0 FAAV emerged from an industry research and development project designed to provide self-propelled field artillery units with a ballistically protected vehicle capable of performing critical resupply and support functions. The FAAV system was type classified and entered production in 1983. It was based on an M109 howitzer chassis that provided the resupply asset with mobility and survivability characteristics commensurate with the supported cannon element. The system is paired on a one-for-one basis with the Army’s M109A6 Paladin self-propelled howitzer.

Paladin Integrated Management (PIM): The PIM program is a sustainment program engineered to improve readiness, avoid components’ obsolescence and increase sustainability of the M109A6 Paladins and the M992A2 FAAVs’ platforms out to the year 2050. The upgrades will allow the PIM to fire Excalibur (XM982) rounds and fuzes such as the precision guidance kit. Operationally, the PIM will be faster and more maneuverable, sustainable and lethal. PIM will leverage fleet commonality for key components including the Bradley engine, transmission, final drives, suspension and the FCS NLOS-C Rammer. PIM will ensure the Paladin fire support platform continues to meet the needs of the Army’s HBCT maneuver commander by improving fires support response and increasing the mobility of the fires support platform. The PIM uses the existing M109A6 main armament, recently designed cab structure, Chief of Section Protection, and belly plate and side armor improvements, increasing crew survivability while replacing obmoded chassis components with advanced components from the Bradley fighting vehicle to increase sustainability and commonality across the HBCT. PIM also incorporates select technologies from the NLOS-C, including an automated (modified electric) projectile rammer and modern electric-gun drive systems to replace the current hydraulically operated elevation and azimuth drives that were designed in the early 1960s. The M109 FOV platforms will be fitted with Blue Force Tracker capability to ensure compatibility with future architectures. These upgrades and better communication technology will significantly improve operational awareness on the battlefield and reduce the logistics footprint within the HBCT. The new electric-gun drives and rammer components as well as a microclimate air conditioning system will be powered by the Common Modular Power System (CMPS). CMPS, which will also be installed on Stryker and has been installed on High-Mobility, Multipurpose Wheeled Vehicle (Humvee) demonstrator vehicles, is based on architecture jointly developed by the Army Tank-Automotive Research Development and Engineering Center and the Program Executive Office-Ground Combat Systems. Once delivered to the field, the PIM M109 FOVs will give HBCT commanders upgraded capabilities including more maneuverability, higher rate of speed, increased crew survivability and delivery of accurate and timely fires where and when needed. In addition, the upgraded Paladins and FAAVs will be more sustainable, providing commanders increased confidence in their artillery fleet.

M707 Knight/M1200 Armored Knight: The M707 Knight was developed and fielded during the late 1990s. Based on the M1025A2 Humvee chassis, the M707 features a mission equipment package fully adapted to support the U.S. Army Field Artillery Combat Observation Lasing Team (COLT) mission with G/VLLD and AN-TAS-4 sensors. In 2003, the M707 was enhanced with a fire-support sensor system (FSS) second-generation FLIR based on the LRA53.

Fielded to both Infantry and heavy brigade combat teams (BCTs), Knights consist of a laser designator and rangefinder, thermal imager, digital command-and-control system, blended inertial/global positioning system navigation and targeting capability, and a self-defense weapon. COLTs use the Knight precision targeting systems, along with the forward observer system (FOS) software, to provide precise far-target location and laser designation for conventional ordnance, laser-guided munitions and precision-guided projectiles such as Excalibur.

First fielded in 2008, PM Fire Support Platforms developed the M1200 Armored Knight to provide improved survivability for the COLTs. Integrating the M707 mission equipment package (MEP) onto the more survivable M1117 armored security...
vehicle chassis, the M1200 Armored Knight adds 360-degree continuous cupola rotation, CREW II, high frequency radio capability, and M2HB .50-caliber capability. To date, 107 M1200 Armored Knights have been fielded to support operations in Iraq and Afghanistan. In addition, 38 systems are scheduled to be fielded to IBCTs and HBC Ts through the remainder of fiscal year (FY) 2009, and 138 more Armored Knights will be fielded via new production or reset in FY 2010.

Product improvements are currently under way to incorporate targeting under armor on the move onto the M1200 Armored Knight. The program will accomplish this by incorporating a common remotely operated weapons system II (CROWS II) and a remote stabilized sensor system (CRS3) onto the M1200 Knight. This capability will put the soldier under armor for operations, with no degradation in capability. Additional efforts are under way to add a fourth crewmember and upgrade the MEP and software to a more open architecture. The program is currently funded for 103 upgraded Knights and will begin fielding in FY 2012.

M7/A3 Bradley Fire Support Team (BFIST): The BFIST program is executing to the Army campaign plan and will complete modularization of the force in FY 2013 with 20 heavy brigades of A3 BFISTs and 11 heavy brigades of M7 BFISTs. BFIST vehicles are required to conduct various mission scenarios including reconnaissance and surveillance, reporting of enemy activity in the area of operations, reporting of hazards and obstacles to movement, and the coordination of indirect fire support. Both versions have equivalent mobility, survivability, signature and night-vision capability and common repair parts as the maneuver force they support. Target designation for all available laser-guided munitions is required, including those delivered by mortars and airborne platforms. Dismount operations are required under some conditions. Extensive and real-time communications with other members of the force and rear-area command posts is required for mission success. Interoperability in the net-centric array of other systems demands full compatibility with the newest C4ISR equipment and procedures.

The M7 BFIST is one of the two models that replaces all the M981s (FISTVs) in the active force at the company FIST operational facility. The M7BFIST integrates both existing and improved FIST mission equipment packages onto an M3A2 Operation Desert Storm (ODS) chassis. Some of the mission equipment, such as the G/VLLD, will be taken directly from displaced FISTVs and stowed. Features incorporated from the M3A2 ODS chassis include the 25 mm gun, 7.62 coaxial machine gun, precision lightweight global positioning system (GPS) receiver (PLGR) and the Bradley eye-safe laser rangefinder. The current M7 BFIST uses the integrated sight unit, which is also used as the gun sight for self-defense. The M7BFIST uses the standalone computer unit (SCU), the ruggedized handheld computer and the forward observer system with full interoperability with FISTs fire-support networks. The inertial navigation system (INS) provides navigational capability based on a blended inertial/GPS solution. The mission processor unit (MPU) calculates target grid location by processing information received from the INS, and mission information from the the targeting station control panel (TSCP) serves as the primary operator interface. The TSCP functions are controlled through a series of menus. The TSCP controls the 1553B data bus. The MPU sends processed information back to the TSCP and SCU for display and routing over the single-channel ground and the airborne radio system to external fire-support elements. The first unit equipped (FUE) with the M7 BFIST was the 3rd Infantry Division in FY 2000.

The second model BFIST is the A3BFIST. The A3BFIST incorporates the FIST MEP with a digitized M3A3 chassis. Features incorporated from the M3A3 chassis include: the commanders’ independent viewer with 360-degree traverse and the improved Bradley acquisition system (IBAS), both second-generation FLIRs, to improve target acquisition and target engagement; the 25 mm gun; 7.62 coaxial machine gun; PLGR; and digital command-and-control enhancements. The first unit equipped for the M3A3 BFIST was the 4th Infantry Division.

An effort is under way to incorporate the fire support sensor system (FS3) onto the A3 digitized BFIST. In addition to the improved features of the M3A3, the A3 BFIST with FS3 will allow the fire support team to detect, identify and designate targets for precision munitions at greater ranges while remaining “buttoned up”—protected by the vehicle’s armor. The new ranges will meet Office of Research and Development requirements and will also allow for laser-guided smart munitions, laser-guided bombs, and missiles for rotary and fixed wing aircraft. The first unit scheduled to be equipped with the M3A3 BFIST is the 2nd Brigade, 1st Artillery Division, in FY 2011.

PM Joint Lightweight Howitzer

The Project Manager for the Joint Lightweight Howitzer takes a joint (Army and Marine Corps) perspective in managing the development, acquisition, testing, systems integration, product improvement and fielding of the M777A2 155 mm joint Lightweight Howitzer system, designed to enhance strategic mobility and provide the Infantry soldier and marine with effective and responsive fire support. Their task is to provide a world-class, supportable howitzer system to artillery cannoners, permitting them to accomplish their missions.

The M777A2 155 mm Joint Lightweight Howitzer (LW155) is a joint Marine Corps and Army program to replace the M198 155 mm towed howitzer. The LW155 is a
The M119A2 105 mm howitzer as well as variants in the M119 family were originally acquired in early 1979. As a successor to the older M119A1 105 mm howitzer, the M119A2 was approved for use in January 2007. The new M777A2 adds the ability to fire the Excalibur precision-guided munition. The M777A2 was approved for use in September 2007.

In addition to the M777 series howitzer, other towed artillery systems being supported in U.S. Army inventories include the M198 155 mm howitzer as well as the M198 155 mm towed system.

The M198 is a lightweight 105 mm howitzer that provides continuous close fires to the Infantry brigade combat teams (IBCTs). The system weighs 4,270 pounds and is air assault/airdrop capable. It has a range of 19.5 kilometers with rocket-assisted munitions (14 kilometers unassisted). It fires all currently fielded U.S. munitions and has a rate of fire of six rounds per minute. Each M198 section has seven crewmembers. The M198A2 is fielded as two eight-gun batteries for each M198A2 battalion.

The M199 was originally acquired in 1986 as a nondevelopmental item from Royal Ordnance Plc. The original 147 howitzers were manufactured in the United Kingdom and the balance produced at Rock Island Arsenal, Ill. The current fleet of M199A2s in the inventory from the first production run is 382 systems. U.S. fire control and a low-temperature-capable recuperator were implemented as the M199A1 in 1991. The light artillery system improvement program resulted in the M199A2, which possessed a number of improvements to enhance the ease of operation and maintenance of the weapon system. Approved prime movers include the Humvee and 2.5-ton and 5-ton trucks.

In 2004, it was determined that U.S. Army Modularity requirements had increased the M199A2 authorized acquisition objective to 893 systems. A decision to reenter production was made by the general officer steering committee. In 2005, the Program Executive Officer for Ground Combat Systems, through the commanding general, U.S. Army Tank-automotive and Armaments Command (TACOM) Life Cycle Management Command, endorsed the make-or-buy recommendation to produce the M199A2 towed howitzer at Rock Island Arsenal. The analysis was conducted under the authority of 10 USC 4532 and in accordance with the Army Industrial Base Process, Army Regulation 700-90 dated 14 December 2004. Cannons would continue to be produced at Watervliet Arsenal, N.Y., and basic issue items for the system are being purchased out of the government supply system. Production at Rock Island and Watervliet Arsenals commenced with the receipt of the FY 2005 Defense Supplemental funding. The last weapon order will be in FY 2010, and the last deliveries will be taken in FY 2012. A full materiel release of these new production howitzers was approved by the commanding general, U.S. Army TACOM Life Cycle Management Command, in June 2008.

A program to integrate a digital fire-control capability onto the M199A2 howitzer (becoming the M199A3 howitzer) was approved by the Program Executive Officer for Ground Combat Systems (PEO GCS) and the commanding general of the Field Artillery School Center of Excellence in January 2008. Direction was provided to maximize commonality across the IBCTs to the maximum extent possible, thus minimizing the IBCT logistics footprint. Leveraging the software for the M777A2 155 mm howitzer maximizes commonality in operation and training while minimizing program cost, schedule and risk. The requirement for this capability is the materiel change package for digitization of the M119A2 105 mm Light Towed Howitzer. The application of a digital fire control will allow the digitized M119A2 to emplace and displace faster, provide more responsive fires and allow the system to become more survivable on the battlefield.

To provide even greater range and lethality for light-unit fire-support elements, the Army began fielding the M198 155 mm Towed Howitzer in early 1979. As a successor to the older M119A1 155 mm towed system, the 15,750-pound (original fielded weight) M198 provided a maximum range of 30 kilometers (with rocket-assisted projectiles) and the capability to fire a broader range of ammunition options than those available for 105 mm units.

Normally towed by a 5-ton truck, the M198 can also be moved by a CH-47D Chinook helicopter or Air Force assets, C-130 and larger.

Project Manager Mine Resistant Ambush Protected (MRAP) Vehicles

The Project Manager for Mine Resistant Ambush Protected (MRAP) Vehicles program will rapidly field highly survivable, mobile, multimission vehicles to the joint force to meet urgent operational requirements.

MRAP vehicles are commercial off-the-shelf vehicles designed from the ground up to reduce casualties and increase survivability for personnel subjected to mine explosions, improvised explosive device detonations and small-arms fire. Multiple missions will be supported by the MRAP fleet, including recon, convoy operations, troop transport, ambulance, combat engineer and explosive ordnance disposal missions for maneuver units. The Pentagon has approved the expansion of the MRAP program to more than 20,000 vehicles with the U.S. Army increasing its fleet of MRAP vehicles from the planned 2,300 to 17,700.
In 2005, Project Manager for Modular Brigade Enhancements (PM MBE) was established and chartered to be the centralized manager for enhancements to the modular brigade combat teams (MBCT). Specific PM MBE responsibilities are to manage the post-Milestone C program and lead the effort to field the Army modernization technologies into selected MBCTs in a consistent and synchronized manner.

The Project Manager for Stryker Brigade Combat Team (PM SBCT) develops, produces and sustains the full range of safe, reliable, supportable and effective Stryker vehicle systems, a diverse fleet of medium-weight vehicles capable of being rapidly deployed to trouble spots around the world. These vehicles leverage existing military “state of the art” technologies in order to provide world-class equipment to the soldier in record time.

Stryker Family of Vehicles. “We must provide early entry forces that can operate jointly without access to fixed forward bases, but we still need the power to slug it out and win decisively.” This was the challenge in 1999 given by then-Army Chief of Staff GEN Eric K. Shinseki. The response was brigade combat teams and the Stryker family of vehicles, the “vanguard for Army transformation.”

The Army’s responsibility to satisfy 21st-century requirements for effective full spectrum operations requires an improved capability for the rapid deployment of highly integrated, combined arms forces possessing overmatching capabilities, exploiting the power of information and human potential, and combining the advantages of both light and mechanized forces across the full range of military and non-military operations.

The Stryker was the first new combat vehicle to be acquired by the Army for more than 20 years. The primary design has two variants: the M1126 infantry carrier vehicle (ICV) and the XM1128 mobile gun system (MGS). The ICV is a troop transport vehicle capable of carrying nine infantry soldiers and their equipment and requires a crew of two, a driver and a vehicle commander. There are eight other ICV configurations with combat service and combat support roles. Those configurations include the M1130 commander’s vehicle, the M1127 reconnaissance vehicle, the M1131 fire-support vehicle, the M1129 mortar carrier/ XM1129A1 mounted mortar carrier, the M1134 antitank guided missile vehicle, the M1132 engineer squad vehicle, the M1133 medical evacuation vehicle and the XM1135 nuclear-biological-chemical reconnaissance vehicle. The SBCT will also be furnished with the mobile gun system. The MGS, now under development, will be based on the ICV but modified to incorporate a 105 mm turret, an autoloader system and a crew of three.

The ICV is armed with a remote weapons station that supports the M2 .50-caliber machine gun or the Mk 19 automatic grenade launcher, the M6 countermeasure device (smoke grenade launcher) and an integrated thermal weapon sight. The Stryker supports communications suites that integrate the single-channel ground-and-air radio system radio family (SINCGARS); enhanced position location reporting system (EPLRS); Force XXI Battle Command Brigade and Below (FBCB2); global positioning system (GPS); and high-frequency and near-term data radio systems. The Stryker provides up to 14.5 mm of ballistic protection.

General Dynamics Land Systems produces the Stryker, which is powered by a 350-hp diesel engine, runs on eight wheels that possess a run-flat capability and has a central tire inflation system. It also incorporates a vehicle height management system.

Robotic Systems Joint Project Office
Finally, the PEO GCS Robotic Systems joint Project Office takes a joint (Army and Marine Corps) perspective in managing the development, acquisition, testing, systems integration, product improvement and fielding of robotic systems that will form the backbone of the force of the future. We are spearheading development of the first-generation system employing the latest sensor, remote navigation, and command-and-control technologies to integrate...
Multifunctional, agile, remote-controlled robot IV

robotics into the battlefield. Speeding these technologies to the battlefield has the potential to revolutionize combat operations.

The Robotic Systems Joint Project Office (RS JPO) serves as the life-cycle manager for all current and future Army and Marine Corps unmanned ground systems. The following are priorities of the RS JPO mission: support the joint warfighter, modernize current unmanned systems, facilitate the transformation to the Future Force, apply continuous process improvement, conduct sound systems-engineering practices and develop the workforce. A healthy partnership with industry, academia, government research centers and the user community has enabled the RS JPO to develop, acquire, field and sustain robotic systems, exceeding warfighter expectations.

Its mission is to lead the development, systems engineering, integration, acquisition, testing, fielding, sustainment and improvement of unmanned systems for the joint warfighter to ensure safe, effective and supportable capabilities are provided while meeting cost, schedule and performance.

Its vision is continuous improvement of unmanned system capabilities to meet current and future joint warfighter objectives.

Support to the joint warfighter in overseas contingency operations has greatly accelerated acquisition and fielding timelines. Delivering safe, effective unmanned systems with a variety of mission payloads in response to joint urgent operational needs has created a number of opportunities as well as challenges for the RS JPO and its partners. Operational needs from theater have defined mission requirements for ground robots from explosive ordnance disposal to area and route clearance and reconnaissance and surveillance. This has resulted in the proliferation of ground robots on the battlefield. Initially, EOD units and route-clearance teams adopted ground robots to interrogate and neutralize improvised explosive devices or unexploded ordnance. Warfighters have since identified mission applications for robots to inspect vehicles; search caves, rubble and tunnels; extend reach and provide enhanced situational awareness. The U.S. industrial base has grown to meet the demand for unmanned systems. This growth is evident across all sectors of the market, including basic and applied research at academic institutions and government laboratories, prototyping and commercialization by small businesses, and manufacturing, production and sustainment operations by traditional defense contractors, automotive suppliers, new companies and government organizations.

In the haste to field robots in Iraq in 2003, commercial off-the-shelf equipment was procured and fielded to get systems in the hands of soldiers and marines as quickly as possible. Initially, demand for robots outpaced the supply capability of industry. Industry responded by crank ing up production capability, which spawned a number of tier suppliers and upstart robotic companies. Competition increased, and innovative, quality products ensued. This dynamic six-year period has created a configuration management and interoperability challenge for the RS JPO. Although close to 6,000 systems have been fielded since 2003, the warfighter still needs a vendor-specific operator-control unit to interface with any given robot. A key tenet of RS JPO’s strategic vision is the development, application and certification of a set of interface specifications and open architecture standards that will enable interoperability, payload integration and product improvement. RS JPO, serving as the system integrator of all payloads on any robotic platform, is responsible for managing space, weight and power trades. The definition of a systronic payload interface (one that defines the mechanical, electrical, communication and systematic interfaces) allows the PM to prescribe a configuration management process. This will drive the PM to a family of robotic platforms with a common set of payload, communication and command-and-control interface standards. The benefits of this discipline are plug-and-play mission payloads, common controllers and true modularity of systems.

As the attention of U.S. military forces has shifted from Iraq to Afghanistan, the RS JPO anticipates additional requirements and new applications for ground robots. Fighting in Operation Enduring Freedom (OEF) is significantly different from that in Iraq. Unlike in Iraq, the transportation, communication and utility infrastructures are rugged mountain trails and mud huts. In Afghanistan, smaller, lighter robots with increased agility and mobility will be needed by infantry units and maneuver elements hiking the high-altitude trails. Certainly, more EOD and route-clearance robots will be needed with the build-up of force. Hazardous material and explosives detection sensors, high-resolution cameras, dextrous manipulators and other payloads will be required to enhance warfighter capability in OEF. The RS JPO is poised to meet the emerging ground robotic requirements for OEF. Modernization and standardization of veteran assets from Iraq will occur during a process called reset. Reset and new procurements will facilitate the transformation to the Future Force. Regardless of how robots are integrated into the heavy, Infantry or Army modernization brigade combat teams, interoperability and modular payloads are two sure things. Another certainty is that this capability can be delivered to the warfighter only through collaboration between the RS JPO and its partners. The RS JPO is committed to building strategic and tactical relationships to support the joint warfighter in the life-cycle management of unmanned systems.