The Program Executive Office for Ammunition (PEO Ammunition) has the mission to continue being the best provider of conventional, leap-ahead munitions, mortars, towed artillery systems and counter-improved explosive device (IED) products by fostering innovation and diversity for the warfighter. Project managers within the PEO are Combat Ammunition Systems, Maneuver Ammunition Systems, Joint Program Manager Towed Artillery Systems, Close Combat Systems, Project Director Joint Services and Project Director Joint Products.

Product Manager Combat Ammunition Systems

The Project Manager Combat Ammunition Systems (PM CAS) is responsible for equipping soldiers and marines with cannon-launched, indirect-fire munitions and mortar weapons systems. Organizations within PM CAS include Product Manager Excalibur, Product Manager Guided Precision Munitions and Mortar Systems (PM GPM2S), Conventional Ammunition Division, Technical Management Division and Business Management Division.

Product Manager Excalibur

The M982 Excalibur, a 155 mm, precision-guided, artillery projectile, a high-explosive projectile with extended range, has been fielded to servicemembers and successfully employed in combat operations. Excalibur couples global positioning system (GPS) precision-guidance technology with an inertial measurement unit to provide accurate, first-round fire-for-effect capability in an urban setting with accuracy better than 4 meters circular error probable (CEP). Excalibur is approximately 1 meter in length and weighs 106 pounds. Its extended range (up to 40 kilometers) and high accuracy result in increased lethality with a decrease in required volume of fire per engagement. Excalibur Increment Ia is currently completing the last of its full-rate production, and Excalibur Increment Ib has initiated low-rate initial production.

Product Manager Guided Precision Munitions and Mortar Systems

The Product Manager Guided Precision Munitions and Mortar Systems (PM GP-M2S) is the life-cycle manager responsible for guided munition improvements for cannon-launched weapons, mortar weapons and mortar fire-control systems. Assigned guided precision munitions include the XM1156 Precision Guidance Kit (PGK) (Urgent Materiel Release [UMR] and program of record) and the UMR XM395 Accelerated Precision Mortar Initiative (APMI). Mortar weapons include 60 mm, 81 mm and 120 mm systems. Fire-control systems include handheld devices and vehicle-mounted systems used to perform mortar tactical and technical fire control for infantry, heavy and Stryker brigade combat teams (BCTs).

The APMI is a response to an Operation Enduring Freedom (OEF) operational needs statement requiring a GPS-guided, 120 mm mortar cartridge with 10 meters CEP accuracy to rapidly defeat personnel targets while minimizing collateral damage. APMI is compatible with U.S. dismounted 120 mm weapons and fire-control system, and the Stryker double-V hull mortar carrier and fire-control system. It has been successfully used in operations in OEF.

The PGK is a GPS guidance kit with proximity and point detonating fuzing functions. It is compatible with existing high-explosive, 155 mm M549A1 and M795 cannon artillery projectiles. The PGK corrects the ballistic trajectory of the projectile to reduce delivery errors and improves projectile accuracy to a range-independent accuracy of less than 50 meters CEP. The PGK will effectively reduce target delivery error of conventional artillery munitions, reducing the number of projectiles required to execute a fire mission. UMR was completed in March, and PGK has been successfully used in operations in OEF. Initial operational capability for the program of record is planned in FY 2014.

The M224A1 60 mm Mortar Weapon System is a lightweight, high-angle-of-fire, smooth-bore, manportable, muzzle-loaded mortar with weight reduced by 20 percent (44 pounds to 35.3 pounds) and reduced maintenance requirements. The M224A1 consists of an M225A1 cannon (tube), M170A1 bipod assembly, M7A1 baseplate, M8 auxiliary baseplate and the M67A1 sight unit. The M224A1 fires the complete family of 60 mm ammunition including high-explosive, smoke, illumination, infrared illumination and practice cartridges. With ranges from 70 meters to 3,500 meters, the M224A1 meets lethality, range and weight requirements for light forces.

The M252A1 81 mm Mortar System is a smooth-bore, muzzle-loaded weapon that replaced the M252 mortar. It features a high rate of fire, extended range, improved lethality and improved overall system characteristics, reducing overall system weight by 13 percent (90.3 pounds to 78.6 pounds). The entire family of 81 mm ammunition can be fired by the M252A1. The M252A1 consists of the M253 cannon (tube), M177A1 bipod, M3A2 baseplate and the M67A1 sight unit.

The M120/M121 120 mm Battalion Mortar System is a smooth-bore, muzzle-loaded, high-angle-of-fire weapon organic to the battalion, providing immediate long-range, lethality, illumination and smoke-screening effectiveness for close combat. It is used in a ground-mounted (M120) or vehicle-mounted (M121 on the M1064A3 mortar carrier) role. It consists of the M298 barrel assembly, M191 bipod assembly, M9A1 baseplate and M67A1 sight. The 120 mm battalion mortar system provides close-in and continuous indirect fire support to maneuver forces and can rapidly respond to threats.
The M326 Mortar Stowage Kit (MSK) is a 120 mm mortar employment improvement. The powered device enables a 120 mm mortar to be quickly put in or out of action. The M326 uses a mortar support strut to hold the mortar tube, baseplate and bipod together in transport mode for ease of deployment. This assembly is emplaced or recovered by a hydraulic winch with a manual backup.

The M95/M96 Mortar Fire-Control System (MFCS) is a digital fire-control system for the vehicle-mounted M121, linking mortar fires with the digital battlefield. MFCS provides increased responsiveness, crew survivability and mortar accuracy.

The M150/M151 Mortar Fire-Control System-Dismounted (MFCS-D) is similar to the M95 MFCS and is being fielded with the M326 to provide a digital fire-control system for the ground-mounted 120 mm system. MFCS-D provides increased responsiveness, crew survivability and mortar accuracy.

The M32 Lightweight Handheld Mortar Ballistic Computer (LHMBC) is a joint service U.S. Marine Corps/Army system that calculates technical firing solutions for the entire family of fielded U.S. mortars and their complete inventory of ammunition. It is linked into the digital fire-support system and includes an internal GPS receiver for improved tube positioning accuracy.

**Project Manager Maneuver Ammunition Systems**

The Project Manager Maneuver Ammunition Systems (PM MAS) is responsible for the life-cycle management—including development, production and fielding—of all Army direct-fire ammunition (except nonlethal) and for the procurement of U.S. Air Force, Navy and Marine Corps direct-fire ammunition assigned to PEO Ammunition as the single manager for conventional ammunition execution. Under its mission for procurement of nonstandard ammunition, PM MAS supports allies with direct- and indirect-fire ammunition and selected weapons. Offices within PM MAS include the Product Manager Small Caliber Ammunition, Product Director Medium Caliber Ammunition, Product Manager Large Caliber Ammunition and Product Director Non-Standard Ammunition.

**Product Manager Small Caliber Ammunition**

The Product Manager Small Caliber Ammunition (PM SC) is the life-cycle manager for the full range of small caliber ammunition, including production of legacy items such as pistol, shotgun and rifle ammunition (up to and including .50-caliber) for all of the armed services and development of new ammunition to support emerging Army requirements. Small caliber systems include .22-caliber, .38-caliber, 9 mm, .45-caliber, 12-gauge shotgun, 5.56 mm, 7.62 mm and .50-caliber families of munitions.

PM SC also manages the modernization of the Lake City Army Ammunition Plant, Mo., the primary source of small caliber ammunition.

The M855A1 Enhanced Performance Round (EPR) is a lead-free version of the M855 cartridge that is fired from the 5.56 mm family of weapons (M4, M16 and M249) and is the newest of the small caliber family of munitions. The M855A1 EPR uses a new bullet design that resulted in a number of significant enhancements over the original general-purpose M855 fielded in the early 1980s. Improvements include better hard-target penetration, more consistent performance against soft targets and significantly increased distances of these effects. The EPR allows training exercises to be conducted on ranges where lead projectiles are no longer allowed. The same technology is also being used to improve 7.62 mm ammunition.

**Product Director Medium Caliber Ammunition**

The Product Director Medium Caliber Ammunition (PD MC) is responsible for life-cycle management of direct-fire combat and training ammunition in 20 mm, 25 mm, 30 mm and 40 mm caliber families. Under the single manager for conventional ammunition execution, PD MC is responsible for procurement of medium caliber combat and training ammunition for the Army, Air Force, Navy and Special Operations Command. PD MC supports medium caliber ammunition needs of the individual warfighter and weapon platforms, which include the Mk 19 Automatic Grenade Launcher; M203/320 Grenade Launcher; Bradley Fighting Vehicle; Light Armored Vehicle; AH-64 Apache, MH-60 Black Hawk and AH-1W Super Cobra helicopters; A-10 Thunderbolt, AV-8 Harrier, AC-130U Spectre, F-15 Eagle, F-16 Falcon, FA-18 Hornet, F-22 Raptor and F-35 Joint Strike Fighter aircraft; the Land Based Phalanx Weapons System (LPWS) for Counter Rockets Artillery and Mortars (C-ARAM); the Phalanx Close-In Weapon System (CIWS) on naval surface combat ships; and the Mk 44 Chain Gun on naval vessels.

New Target Practice-Day/Night/Thermal (TP-DNT) ammunition is being developed for the 40 mm grenade family to allow soldiers and units to train more realistically on continental U.S. training ranges without safety concerns from unexploded ordnance, while meeting environmental requirements with nontoxic components. Currently, units cannot go downrange during training to conduct fire and maneuver tactics. TP-DNT rounds are being developed for both the low-velocity family, fired from the M203 and M320, and the high-velocity family, fired from the Mk 19. Low-rate initial production and full operational capability are planned for fiscal year (FY) 2016. A capability development document (CDD) was signed for the 40 mm high-velocity training round and a capability production document for the 40 mm low-velocity in December 2011. In addition, multiple new technologies for 40 mm low-velocity ammunition are being evaluated to meet new and evolving requirements, including anti-defilade, door breaching and extended range capabilities. These requirements are identified in a CDD currently in worldwide staffing for approval.

In conjunction with PM Ground Combat Vehicle (GCV), new 30 x 173 mm tactical and training ammunition is being developed and qualified for use with the GCV. The new suite of ammunition includes target practice-traced, armor piercing, fin-stabilized, discarding sabot-traced, target practice discarding sabot-traced, high explosive incendiary-traced and programmable airburst munition-traced.

**Product Manager Large Caliber Ammunition**

The Product Manager Large Caliber Ammunition (PM LC) is responsible for life-cycle management of large caliber, di-
rect-fire combat and training ammunition for the Army and Marine Corps. Platforms supported include the Abrams main battle tank (MBT) and Stryker mobile gun system. Primary target sets for ammunition being procured and new systems being developed are armor, structures, bunkers, obstacles and infantry squads. PM LC also develops and procures specialized ammunition for foreign military sales customers of the Abrams tank. Calibers supported include 105 mm and 120 mm.

The M829E4 is a 120 mm, fifth-generation, kinetic-energy, armor-piercing, fin-stabilized discarding sabot cartridge for the Abrams MBT. The cartridge is specifically designed to defeat future armored targets equipped with explosive reactive armor and active protection systems. The program is in engineering, manufacturing and development, with the Milestone C projected in FY 2014. This cartridge has an expanded operational temperature and provides a significant lethality overmatch against all projected armor threats.

The M724A1E1 105 mm Target Practice Discarding Sabot with Tracer (TPDS-T) cartridge is intended for use in the M68 cannon in the mobile gun system of the Stryker brigade combat team (SBCT). The cartridge will replicate the 105 mm kinetic energy M900 tactical cartridge in appearance and flight characteristics, and it will replace the obsolete M724A1 cartridge developed in the 1970s. It will be range-limited to allow safe firing at all mobile gun system training ranges. The program is planning to conduct a Milestone C review in the fourth quarter of FY 2013 for approval to begin low-rate initial production.

**Product Director Non-Standard Ammunition**

The Product Director Non-Standard Ammunition (PD NSA) provides quality nonstandard ammunition and nonstandard mortar weapon systems to allied nations and other U.S. customers. Nonstandard ammunition/mortar systems are not managed by national inventory control points, have not been safety-tested and type-classified for Army use, do not have a national stock number, and cannot be procured or requisitioned through the Army or other DoD supply systems. The majority of this ammunition is produced in former Soviet/Eastern bloc countries. Munitions procured range from 5.45 mm through 122 mm, supporting individual and crew-served weapons and platforms including tanks, artillery and aircraft.

**Joint Program Manager Towed Artillery Systems**

The Joint Program Manager Towed Artillery Systems (PM TAS) 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 (LW155) system, designed to enhance strategic mobility and provide the infantryman and marine with effective and responsive fire support. The LW155 is a joint Marine Corps and Army program that replaces the M198 155 mm Towed Howitzer. The LW155 is a general support system for the Army’s light units, a direct-support cannon fire support system for the SBCT and the sole howitzer in the Marine Corps. The LW155 weighs less than 10,000 pounds and has a maximum firing range of approximately 30 kilometers with rocket-assisted projectiles, 24.7 kilometers with standard rounds and up to 40 kilometers using Excalibur. It has a maximum firing rate of four rounds per minute and a sustained rate of two rounds per minute. The M777A2 is fitted with onboard electronics, giving it self-locating, self-laying and digital communications similar to the M109A6 Paladin. The M777A2 adds the ability to fire the Excalibur precision-guided munition.

In addition to the M777A2 Howitzer, other towed artillery systems supported in U.S. Army inventories include the M119A3 105 mm Howitzer, the Improved Position and Azimuth Determining System (IPADS), and the M198 155 mm Howitzer.

The M119A3 is a lightweight system that provides continuous close fires to infantry BCTs. The system weighs 4,690 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. Its approved prime movers include the Humvee and 2.5- and 5-ton trucks.

A program to integrate digital fire-control capability onto the M119A2 Howitzer was approved in 2008 and resulted in the full materiel release of the M119A3 in March. Using the software for the M777A2 155 mm Howitzer maximizes commonality in oper-
ation and training while minimizing program cost, schedule and risk. The application of a digital fire control allows the digitized M19A3 to emplace and displace faster, provide more responsive fires, and become more survivable on the battlefield.

The IPADS provides common inertial survey control for all Army and Marine Corps field artillery, mortar, artillery meteorological and radar systems. IPADS-G adds a global positioning system (GPS) feature to the IPADS and augments operations of the fire support community by providing the ability to maintain the current accuracy of IPADS without stopping for zero-velocity updates, thus increasing the artillery timeliness, availability of fires, lethality, survivability and force protection on extended convoys or artillery missions. IPADS-G is also capable of operating in an inertial fashion independently of GPS aid.

The Army began fielding the M198 155 mm Towed Howitzer in 1979 to provide greater range and lethality for light-unit fire-support elements. As a successor to the older M114A1 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). The M777A2 has replaced the M198.

PM TAS also supports the D-30 Howitzer program. The D-30 is a 122 mm Soviet-towed howitzer that entered service in the 1960s. It weighs 7,055 pounds and has a maximum range of 15.4 kilometers (21.9 kilometers assisted). It has a maximum rate of fire of 10 to 12 rounds per minute and a sustained rate of five to six rounds per minute. In 2010, PM TAS was given a requirement to provide 204 D-30s to the Afghan national army, provide training on the operation and maintenance of the weapon system, and establish a refurbishment capability in Afghanistan to allow Afghan workers to refurbish additional howitzers.

**Project Manager Close Combat Systems**

Nearly every mission soldiers face, either domestic or international, involves an item managed by Project Manager Close Combat Systems (PM CCS), whose contributions are on the forefront of theater operations and span multiple services. They provide cutting-edge technology to defeat ever-evolving and adapting threats as well as legacy systems being used in new, innovative ways on today’s battlefield. The PM CCS portfolio of products includes counter-improvised explosive devices (IED), handheld pyrotechnic devices, C-4 explosives, shoulder-launched munitions (SLMs), mine clearing line charges, hand grenades and nonlethal weapon sets.

PM CCS manages long-term acquisition and production contracts that are flexible enough to support dynamic changes in both warfighting and training requirements. It is actively pursuing technologies that will result in smaller, lighter, more lethal munitions to ensure increased mobility across a range of military operations. In support of combat operations in Iraq and Afghanistan, PM CCS has responded to more than 100 urgent materiel releases and executed 67 operational needs statements.

**Product Director Area Denial**

PM CCS is redefining how soldiers shape the battlefield and protect the force through continual advances in area denial capabilities. Area denial systems and munitions block enemy access to important terrain and restrict the enemy’s ability to maneuver freely. These systems include cutting-edge networked munitions and legacy antipersonnel and antivehicle systems. They are manportable and provide soldiers with faster response time, greater efficiency and enhanced safety and can be employed to protect perimeters and flanks during attack, reinforce light forces and control enemy movement.

The XM-7 Spider Networked Munition is an effective lethal and nonlethal alternative to antipersonnel land mines (APLs). Currently operational in Afghanistan, the system is an advanced, man-in-the-loop (MITL) area denial system that offers remote-controlled force protection. The system is different from a land mine in that it cannot deliver effects unless commanded to do so, and it can be safely recovered from the field and reused. Spider provides the equivalent munition field effectiveness of current APLs without the residual life-threatening risks after hostilities end or when warring factions depart.

The Selectable Lightweight Attack Munition (SLAM) is a multipurpose munition designed to be readily portable and hand-emplaced against lightly armored infantry vehicles, parked aircraft and petroleum...
The upgraded enemy actions, including shoulder-launched munitions (SLMs), grenades, and that broaden soldiers' options for counter-nonlethal ammunition and systems. These munitions fill a wide range of possible nonlethal applications, including crowd control and enforcing a buffer zone.

Product Director Support Munitions

PM CCS’ Support Munitions— demolitions and pyrotechnics—provide soldiers with enhanced maneuver, communication and illumination capabilities across various missions on the battlefield.

Combat engineers, infantry, explosive ordnance disposal and special operations use demolitions and breaching munitions to clear mines and IEDs, overcome obstacles, and impede enemy movement. Modernization efforts are aimed at making demolitions lighter, more reliable and less sensitive. PM CCS manages a range of demolition items, including the Blasting Demolition Kit (BDK), a variety of inert items that can be assembled into various explosively formed penetrator warheads, linear shaped charges and conical shaped charges, including tools, equipment and attachment devices that will be used in the construction, emplacement and attachment of a variety of demolition charges; Remote Activation Munition System (RAMS), a secure, radio-controlled system designed to remotely control demolition charges; and Modern Demolitions Initiator (MDI), a suite of components used to activate all standard military demolitions and explosives and bulk, shaped and cratering charges. Designed to clear mines and related obstacles for dismounted soldiers and vehicles, the Anti-Personnel Obstacle Breaching System is light enough to be carried by two soldiers with backpacks, while the Mine Clearing Line Charge is a rocket-projected explosive line charge.

Pyrotechnics include munition flares, signals and simulators. Advanced infrared decoy flares, the M206, M211 and M212 Air Countermeasure Flares, are used by Army aircraft and helicopters to defeat a range of threats. The family of Handheld Signals provides aircraft, distress and troop emplacement signaling as well as battlefield illumination. Battlefield and ground effects simulators, such as the M115A2 Ground Burst Simulator and M116A1 Hand Grenade Simulator, produce battle noises and effects—shells in flight, ground burst explosions or grenades—for use in training.