



# WEAPON SYSTEMS HANDBOOK 2018



**AMERICA'S ARMY:**

TODAY'S MODERNIZATION IS TOMORROW'S READINESS





# INTRODUCTION

This biennial publication details the U.S. Army's major weapon systems and equipment programs, as well as our Science and Technology initiatives. With responsibility for several hundred programs, the U.S. Army Acquisition Corps and larger Army Acquisition Workforce – comprised of more than 39,000 military and civilian professionals – have the unique and solemn responsibility of providing the materiel solutions that ensure our Soldiers are equipped and ready for any mission, anywhere in the world. They depend on us to get it right.

With program descriptions, status and specifications, projected activities, as well as benefits to the Soldier, this handbook is designed to give you a better understanding of our efforts to provide Soldiers with the advanced, world-class capabilities they need to win our nation's wars and come home safely. This year, we are also showcasing the individual organizations that collectively form the Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)), as well as the important work they do to make the Total Army more lethal, capable and efficient.

We hope that you find this handbook a valuable and informative resource.

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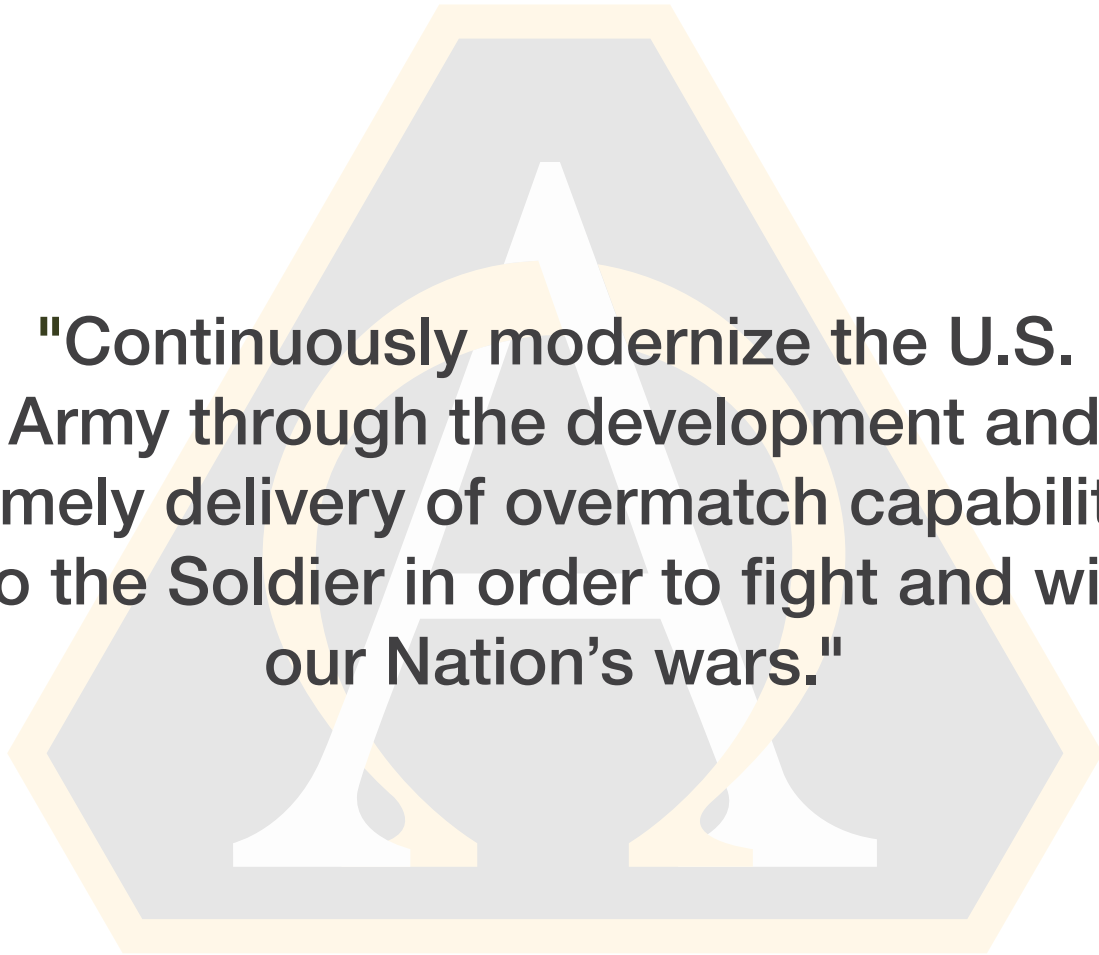


**ASSISTANT SECRETARY  
OF THE ARMY (ACQUISITION,  
LOGISTICS AND TECHNOLOGY)  
(ASA(ALT)) ORGANIZATION**



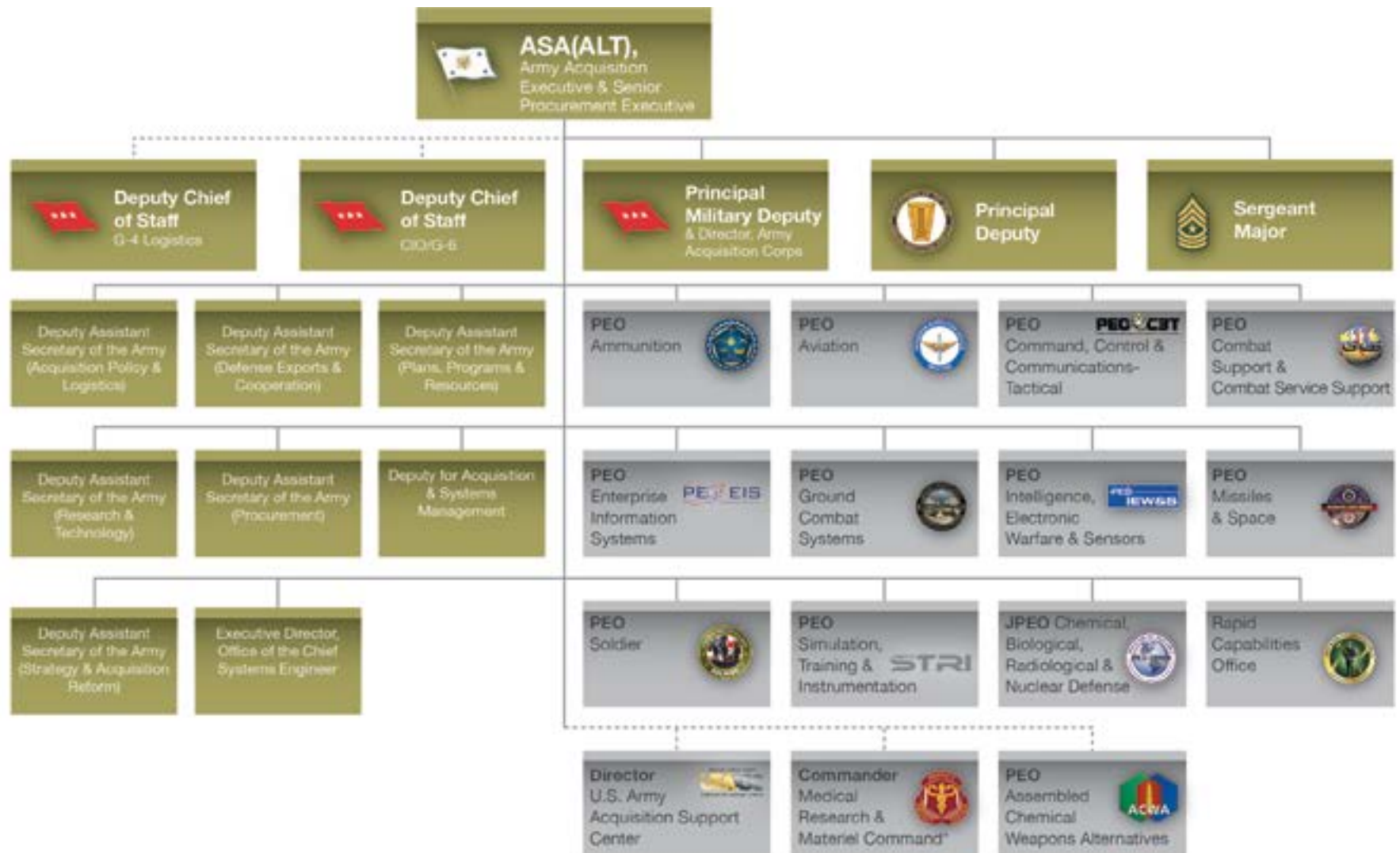
# ASA(ALT) Mission Statement

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**"Continuously modernize the U.S. Army through the development and timely delivery of overmatch capability to the Soldier in order to fight and win our Nation's wars."**

# ASA(ALT) Organization



\* Deputy for Medical Systems. Receives acquisition oversight, but reports to the Surgeon General.

# DASA Acquisition, Policy and Logistics

103 Army Pentagon, SAAL-ZL (Room 2D536), Washington, DC 20310 • 703-697-5050

The **Deputy Assistant Secretary of the Army for Acquisition Policy and Logistics (DASA APL)** develops and oversees Department of the Army life cycle logistics policies and procedures for total life cycle systems management of weapon and support systems. The Acquisition Logistics Policy and Programs as well as the Industrial Base Directorates formulate and guide execution of Army life cycle logistics and industrial base policies for an acquisition program portfolio that exceeds \$50 billion annually. Furthering the DASA APL mission, the Environmental Support Office provides expertise in the areas of environmental, safety, occupational health, energy, and corrosion control and prevention.

The *Acquisition Logistics Policy and Programs Directorate* develops and refines acquisition logistics policies and procedures for all phases of the life cycle that align with Department of Defense policies and Army requirements. This includes developing performance-based product support strategies, reliability, availability and maintainability, engineering for transportability, item unique identification, type designation, type classification, materiel release and quality. During the last year, the Directorate focused on acquisition reform initiatives, metrics development and property accountability.

In addition, the Acquisition Logistics Policy and Programs Directorate implemented Operational Sustainment Reviews (OSRs) to perform post-production analysis and review of sustainment execution in accordance with 10, U.S. Code 2441. OSRs are conducted no later than two years after a Full Rate Production decision and then every five years for the life of the system. OSRs examine actual system and product support package performance in the operational environment and make recommendations for adjustments to the plan as needed. The team conducted five OSRs in Fiscal Year 2018 (FY18) with an additional three planned. There are eight OSRs planned for FY19. Lessons learned from the OSRs are being applied to adjust policies and procedures where systemic issues are identified.

The Acquisition Logistics Policy and Programs Directorate also works closely with key stakeholders to ensure that the transition to Army Enterprise Resource Planning systems for data integration and property accountability is successful.

*The Industrial Base Directorate* provides integrated strategy, policy and analysis and assessment of the health of the Defense Industrial Base (DIB), which is comprised of both organic and commercial sectors, ensuring the availability of current and future industrial capabilities to support Army acquisition. This Directorate also provides Army leadership with actionable business intelligence and DIB analytics and is responsible for developing and implementing the Army-wide Make or Buy Policy.



# DASA Defense Exports and Cooperation

103 Army Pentagon, SAAL-ZN (Room 2D532), Washington, DC 20310 • 703-614-3434

The **Deputy Assistant Secretary of the Army for Defense Exports and Cooperation (DASA DE&C)** is the U.S. Army's lead for security assistance, armaments cooperation and export licensing activities. As head of the Army Security Assistance Enterprise (ASAE), DASA DE&C ensures that the Army provides materiel, services and training across the spectrum of Army capabilities to international partners through a number of U.S. government security assistance programs. Undergirding the ASAE's efforts is a concept known as the "total package approach," which makes sure that the sale or transfer of weapons or equipment comes with the spare parts, training, ammunition and other support materiel or services, to include construction and engineering services, required to ensure a credible and sustainable military capability. Coupled with this approach, DASA DE&C also oversees the Army's International Military Education and Training program, which facilitates foreign military personnel attendance at Army schools and training in order to enhance military-to-military understanding and interoperability. These efforts build long-term relationships with foreign partners and allies that provide the Army with global partners it can rely on to defend mutual global interests.

DASA DE&C also leads the U.S. Army's Armaments Cooperation (AC) Enterprise composed of individuals in research laboratories, test and evaluation centers, and program offices throughout the Army. AC refers to a compilation of defense security cooperation programs that enable International Cooperative Research, Development and Acquisition with other countries, North Atlantic Treaty Organization and other authorized international organizations. AC helps achieve operational and economic objectives of increasing military effectiveness through interoperability and partnership with allies and partners; avoiding duplication of research and development efforts; and reducing weapons acquisition costs by cost sharing and achieving economies-of-scale. DASA DE&C achieves these objectives through creation, negotiation and management of information and personnel exchanges, cooperative Research, Development, Test and Evaluation of defense technologies, systems or equipment; joint production and follow-on support of defense articles or equipment; and procurement of foreign technology, equipment, systems or logistics support.

Under the Arms Export Control Act of 1976 and the International Traffic in Arms Regulations, DASA DE&C executes the Army's responsibilities under law to protect military technologies and prevent unauthorized proliferation of weapons, weapon systems, intellectual property and sensitive information. American companies wishing to market or sell military goods and services enumerated in law to an international customer must obtain a license to do so. Under the guidance of the Departments of Defense, State, Commerce and Treasury, DASA DE&C reviews export license requests and provides the official Army position on whether to grant or deny the request to the broader U.S. government.

DASA DE&C is organized into four directorates: the *Armaments Cooperation Directorate* leads international armaments cooperation programs and activity; the *Policy and Resources Directorate* develops policy and manages resources for security assistance and international armaments cooperation; the *Security Cooperation Integration and Exports Directorate* leads Army Headquarters review of Foreign Military Sales actions and develops export policy and Army positions on export licenses; and the *Strategy, Outreach and Operations Directorate* conducts strategic planning, forecasting and outreach.



# DASA Plans, Programs and Resources

103 Army Pentagon, SAAL-ZR (Room 2D524), Washington, DC 20310 • 703-697-0387

The **Deputy Assistant Secretary of the Army for Plans, Programs and Resources (DASA PPR)** serves as the Chief Financial Officer and Principal Advisor to the ASA(ALT) on budgetary and financial matters relating to Research, Development and Acquisition and Operations and Maintenance for Army acquisition programs. DASA PPR focuses on effective and efficient distribution and oversight of \$78 billion in active appropriations for more than 785 programs in support of Army readiness and modernization. As the Equipping and Sustaining Program Evaluation Group (PEG) co-chair, DASA PPR manages resources that enable the development, procurement and deployment of weapon systems and equipment to Soldiers, as well as members of the other Services. Developing and implementing reform initiatives where efficiencies can be made to ensure sustainment of current systems through useful life while enabling Cross-Functional Teams to develop next generation systems that increase Soldier and unit capability and lethality.

The *Financial Operations Directorate* provides oversight of resource execution for Research, Development, Test and Evaluation, Procurement, and Operations and Maintenance funding for Army programs. The directorate accomplishes these goals through consistent engagement with Program Executive Offices and Army staff elements in coordinating and providing oversight of execution, rephasing and reprogramming actions to meet the Army's readiness and modernization priorities. To ensure efficient execution, the team strives to provide programs the right resources when needed and to identify opportunities to ultimately reduce disruptions and maintain schedule.

The *Human Capital Resource Integration Directorate* focuses on planning and programming manpower authorizations to make sure the Army acquisition community is positioned to execute strategic priorities. This requires continual review, analysis and validation of program office manpower requirements to ensure ASA(ALT) input in Total Army Analysis results in successful execution of Research, Development and Acquisition. Recent reform initiatives to improve civilian pay efficiencies and increase transparency include transitioning core personnel from reimbursable to direct funding.

Longer-term, the *Equipping and Sustaining PEG Directorates* will work with the Army Futures Command and Army G-8 to identify key strategic decisions over the next 30 years to meet Army equipping priorities. This group supports development of the annual Program Objective Memorandum (POM) for both Equipping and Sustaining PEGs. The long-term strategic portfolio analysis and review, integrated with POM builds, allows Army leadership to make decisions now that shape success in the future.

The *Acquisition Domain Functional Directorate* provides functional governance and oversight of acquisition domain data and knowledge management within ASA(ALT). This directorate ensures functional and business process requirements are being documented for better control and reliability of acquisition data. These efforts provide standardization and increased visibility of authoritative data resulting in greater efficiencies, high-quality analysis and better traceability. The end goal is a standardized data structure for enterprise visibility and decision-making.

Finally, the *Audit Readiness Directorate* continues to improve the Army's ability to comply with standard accounting practices by working directly with Program Executive Offices to complete asset valuation of general equipment and Operating Materials and Supplies. The team works collaboratively with Army G-4 and the Assistant Secretary of the Army (Financial Management and Comptroller) to improve compliance with accounting principles and internal controls of the existence and completeness of general equipment.



# DASA Procurement

103 Army Pentagon, SAAL-ZP (Room 2D528), Washington, DC 20310 • 703-695-2488

The **Deputy Assistant Secretary of the Army for Procurement (DASA(P))** serves as the Principal Advisor to the ASA(ALT) for Procurement, executing the full range of responsibilities for the Senior Procurement Executive (SPE), Functional Chief Representative, and the Senior Official for the Acquisition of Services. DASA(P) leads the contracting community of practice, which is comprised of 8,000 contracting professionals assigned to multiple commands. The focus is on training and developing a highly skilled workforce through strategic talent management; providing the policy, business systems, support, and oversight for all stages of procurement execution resulting in award of over \$86 billion and 265,000 contract actions annually; and monitoring strategic metrics to gauge the health of contracting and drive decisions to positively impact Soldier support across the globe. DASA(P) is focused on three strategic areas that directly align with the Secretary of the Army's priorities of Readiness, Modernization and Reform—Talent Management, Procurement Execution and Data/Analytics.

*Talent Management* is a deliberate and integrated process to attract, develop and strategically align talent with current and future Army requirements. DASA(P) is focused on developing and delivering a strategic talent management structure that will help guide contracting professionals while supporting the Army mission by focusing on three primary areas: competency, capacity and capability. The success of the program is based on the ability to achieve measurable results in the following areas with the contracting workforce: technical competence, challenging and diverse assignments, broad experience, an educated and engaged workforce, critical leadership skills, job satisfaction and pathways to senior executive service and general officer positions.

DASA(P) serves and supports the field with *Procurement Execution* in a variety of ways, including functioning as the central conduit between the contracting activities and ASA(ALT) and directly supporting program and warfighter readiness through proactive engagement across the Army. Additionally, DASA(P) develops, implements and executes the acquisition framework of services, and is heavily engaged in acquisition reform efforts to generate savings through

greater efficiency of spend, such as category management implementation and quarterly strategic metrics reviews to measure and improve efficiency and effectiveness.

DASA(P) manages the Army's Procurement Management Review program and provides centralized tracking and management for contracting audits performed by the various audit and inspection activities. DASA(P) serves as the single point of management in the Army for Federal, Department of Defense and Army procurement regulations and policies, providing guidance on the latest regulations and policies. DASA(P) has also implemented acquisition reform initiatives to streamline or eliminate outdated or unnecessary policies to influence how contracts are executed in the future and help accelerate current acquisition timelines.

Real-time *Data and Analytics* are critical in making decisions that impact the entire Army Contracting Enterprise. DASA(P) serves as the central authority, advisor and proponent for the various procurement systems across the Army Contracting Enterprise. Modernization of the Army's contract writing system capability is a top priority to achieve audit readiness and improve effectiveness and efficiency in business processes. Leveraging the Virtual Contracting Enterprise (VCE) suite of applications in order to view real-time data concerning all aspects of Army contract actions, DASA(P) provides the contracting and acquisition workforce with the appropriate tools and systems needed to perform their mission. The VCE provides standardization across the enterprise while providing oversight for all of its contracting and workforce data.



# DASA Research and Technology

103 Army Pentagon , SAAL ZT (Room 2E525), Washington, DC 20310 • 703-571-2608

The **Deputy Assistant Secretary of the Army for Research and Technology (DASA R&T)** is the senior official responsible for science, research and technology within the Department of the Army. The DASA R&T serves as the chief scientist and science advisor to the Secretary of the Army and represents the Army in science, research and technology matters to the Department of Defense (DOD) and non-DOD partners.

To fulfill these responsibilities the DASA R&T provides strategic direction and supervision for science, research and technology initiatives executed by Department of the Army officials, organizations and commands. DASA R&T is responsible for the oversight and executive management of the Army's Science and Technology (S&T) portfolio, including resource allocation decisions supporting the Army's S&T planning, programming and budget execution processes. In accordance with and in support of ASA(ALT) statutory duties, the DASA R&T is also responsible for the Technology Readiness Assessment of Army Major Defense Acquisition Programs, advising the Milestone Decision Authority (MDA) at Milestone B (or at other events designated by the MDA) in the determination of whether program technologies have acceptable levels of risk.

Under the oversight of the DASA R&T, the Army's S&T investments provide breakthrough research and technology innovation by creating, adapting and developing leading-edge technologies for future Army capabilities; innovating technical solutions in response to urgent warfighter needs; and informing affordable and achievable requirements through experimental prototyping and demonstrations that leverage early Soldier input and drive down technical risk.

After engaging in a critical review with Army stakeholders and leadership, DASA R&T is currently leading a strategic rebalance of the Army S&T Portfolio to address the Army's most critical modernization priorities. This rebalance has resulted in redirecting more than \$1 billion in S&T funding from near- to mid-term projects, reducing investments in support of counter-insurgency efforts, and increasing or accelerating investments to prepare for and deter strategic, near-peer competitors in the mid- and far-term.





# DASA Strategy and Acquisition Reform

103 Army Pentagon, SAAL-ZF (Room 2D516), Washington, DC 20310 • 703-695-2549

The **Deputy Assistant Secretary of the Army for Strategy and Acquisition Reform (DASA SAR)**, working collaboratively with other elements of the modernization enterprise, is charged with developing long-term institutional transformation to meet two of the Secretary of the Army's top priorities – modernization and reform. The Army is in the midst of its largest and most significant organizational change since 1973 with the establishment of the U.S. Army Futures Command (AFC). This drive for reform and organizational change provides a unique opportunity to improve the efficiency and effectiveness of the Army's modernization enterprise.

DASA SAR has principal responsibility for design and implementation of acquisition reform and modernization initiatives across the total life cycle of the Army's weapon and support systems to ensure continued materiel dominance today and into the future.

Focus areas include:

- Developing and evaluating options for acquisition reform and modernization, including streamlining processes and applying Army leadership's principles to the acquisition system
- Working with other stakeholders to create the new roles, responsibilities and relationships of ASA(ALT), AFC and other parties of the Army Acquisition system
- Developing strategies to manage complex acquisition challenges and emerging opportunities such as intellectual property and advanced manufacturing
- Reviewing existing and proposed Army acquisition policies for consistency with the Army Acquisition Executive's priorities and mission
- Working with Congressional, Department of Defense (DOD), Army and industry stakeholders to incorporate reform initiatives into policy, regulation and law
- Ensuring that Army modernization and acquisition reform efforts are synchronized within the DOD in order to capitalize on best business practices, as well as leverage "best of breed" investments from industry and other military departments



# Deputy for Acquisition and Systems Management

103 Army Pentagon, SAAL ZS (Room 2E520), Washington, DC 20310 • 703-695-3117

The **Deputy for Acquisition and Systems Management (DASM)** leads executive program oversight and implementation of acquisition policy. As the direct link between ASA(ALT) and the Program Executive Offices (PEOs) and Program Managers (PMs), the DASM team is at the forefront of delivering weapons, combat vehicles, sustainment systems and equipment to Soldiers.

This team is dedicated to improving a Soldier's ability to conduct the full range of military operations by creating, obtaining, distributing and sustaining equipment, providing cradle-to-grave support for weapon systems and ensuring delivery on schedule and within cost. Department of Army Systems Coordinators (DASCs) work with Deputy Chief of Staff, G-8 counterparts throughout the acquisition process. DASCs also work with Congress to justify budgets and planning. Additionally, the DASM team is responsible for ASA(ALT) Forward Operations, program reviews, test and evaluation and Congressional reporting functions. Playing a role central to budgeting, formulation and defense of the Army's Research, Development and Acquisition budget, the DASM team collaborates with stakeholders throughout the Army to ensure our Soldiers are ready to fight tonight.

The DASM office supports Army acquisition reform with monthly metrics reviews of all Major Defense Acquisition Programs. Metrics reviews enhance awareness and ensure viability in Army modernization efforts. The office also provides monthly Acquisition Program Reviews of Acquisition Category (ACAT) II-IV programs and other acquisition efforts, and submits Selected Acquisition Reports to Congress.

The DASM wrote the implementation policy in statutory documentation to support Milestones A through C and developed the ASA(ALT) policy for implementing changes to the annual Configuration Steering Boards requirement. This team also developed and wrote the Army Acquisition Executive's automatic delegation of Milestone Decision Authority (MDA) for ACAT II and III programs to the PEOs and drafted the ASA(ALT) policy for annual reporting for ACAT II-IV programs. Additionally, the team participated in developing the ACAT IV designation, which

allows for delegation of MDAs to PMs at Colonel or the civilian equivalent rank, and implemented Simplified Acquisition Management Plans for select ACAT II programs and all ACAT III-IV programs.

The DASM office collects and reports acquisition program metrics for all ACAT level programs and collaborates with ASA(ALT) and PEO staffs to consolidate and streamline data collection, perform analyses and report performance to inform senior leaders' decisions.



# PEO Ammunition

SFAE-AMO, PEO Ammunition, Building 1, Buffington Road, Picatinny Arsenal, NJ 07806 • 973-724-5244



**Program Executive Office Ammunition (PEO Ammo)** leads and manages the research, development, production, procurement and equipping of lethal armament and protective systems that provide joint warfighters with overmatch capabilities to defeat current and future threats worldwide. PEO Ammo's vision of "innovative and empowered teams rapidly delivering dominating capabilities" ensures that the Munitions Enterprise meets its responsibilities now and in the future. PEO Ammo is designated as the Single Manager for Conventional Ammunition (SMCA) Executor. The SMCA objective is to achieve the highest possible degree of effectiveness and efficiency in the Department of Defense operations required to acquire conventional ammunition and integrate logistic functions for U.S. Armed Forces.

PEO Ammo's six subordinate offices accomplish the life cycle management of 600+ Army programs providing the joint warfighter with superior munitions through a collaborative effort that leverages government and industry partnerships. These offices include the following:

- *Project Manager Combat Ammunition Systems (PM CAS)* develops, produces, and equips Soldiers and Marines with conventional artillery and mortar ammunition, precision ammunition, mortar weapons, and mortar fire control systems. Under the SMCA responsibilities, PM CAS also procures ammunition for U.S. Marine Corps, U.S. Air Force, U.S. Special Operations Command and allied nations.
- *Project Manager Close Combat Systems (PM CCS)* manages networked and analog technologies, energetics, and munitions that improve anti-area access/area denial and increase lethality, survivability, and overmatch of both the mounted and dismounted joint force in the close fight. PM CCS supports the spectrum of lethal, non-lethal, robotics, counter-measures and counter explosives of unified land operations.
- *Project Manager Maneuver Ammunition Systems (PM MAS)* develops, equips and sustains integrated lethal direct fire ammunition (small, medium, and large caliber) effects to enable joint and allied warfighters overmatch capabilities throughout the battlefield. PM MAS also provides direct and

indirect fire ammunition and rockets to allied nations that utilize previous Soviet Bloc weapon systems.

- *The Project Manager for Towed Artillery Systems (PM TAS)* is a joint Army/ U. S. Marine Corps program office. PM TAS provides direct, reinforcing, and general support of towed artillery fires to maneuver forces, including Stryker and Infantry Brigade Combat Teams, field artillery brigades, Army light forces, and all Marine Corps units. PM TAS also manages survey systems for the Army and Marine Corps and all legacy towed howitzers in the Army's inventory.
- *Project Director Joint Products (PD JP)* executes SMCA acquisition responsibility for product configurations managed by and/or primarily procured for other military services, including U.S. Air Force and U.S. Navy General Purpose, Penetrator, and Cast-Ductile Iron bombs and associated components, energetics, and 5-inch Navy Gun Ammunition product lines. PD JP also manages Army-funded procurement of Cartridge Actuated Devices and Propellant Actuated Devices.
- *Project Director Joint Services (PD JS)* executes life cycle management responsibilities for the SMCA in support of the industrial base, demilitarization, manufacturing technology and prototyping, and ammunition logistics research and development.



# PEO Assembled Chemical Weapons Alternatives



8198 Blackhawk Road, Edgewood Area, ATTN: SFAE-ACW-Z, Aberdeen Proving Ground, MD 21010 • 410-436-3498

**Program Executive Office Assembled Chemical Weapons Alternatives (PEO ACWA)** is responsible for the safe destruction of the remaining U.S. chemical weapons stockpiles at the U.S. Army Pueblo Chemical Depot in Colorado and the Blue Grass Army Depot in Kentucky. The program's mission is to destroy these chemical weapons stockpiles by 2023. As part of this work, PEO ACWA oversaw the safe destruction of ninety percent (27,474 U.S. tons) of the U.S. chemical weapons stockpile at seven chemical weapons storage sites by the U.S. Chemicals Materials Activity. Upon completion of its mission, the program ends and the U.S. will be in compliance with the International Chemical Weapons Convention.

PEO ACWA is aligned under the U.S. Army Acquisition Support Center. This designation provides PEO ACWA with the necessary support and resources as an Army organization under the direct command and control of the Department of Defense. The PEO reports directly to the Deputy Assistant Secretary of Defense (Threat Reduction and Arms Control), under the umbrella of the Department's Chemical Demilitarization Program as mandated by Congress in Public Law 105-261.

The *U.S. Army Pueblo Chemical Depot* stored 2,613 tons of mustard agent in projectiles and cartridges. PEO ACWA worked with the community to select neutralization, followed by biotreatment as the destruction technology for their Colorado facility. The plant initiated destruction operations in 2016. Additionally, the U.S. Army Explosive Destruction System augments the plant's baseline technology to destroy problematic chemical munitions that cannot be easily processed through the main plant.

The *Blue Grass Army Depot* stored 523 tons of nerve and blister agents in rockets and projectiles. PEO ACWA worked with the community to select neutralization, followed by supercritical water oxidation (SCWO) as the destruction technology for their Kentucky facility. The plant is currently undergoing systemization in anticipation of a 2019 start-up. Additionally, a Static Detonation Chamber, an explosive destruction technology, will augment the plant's neutralization/SCWO technology to destroy approximately 15,000 155 mm mustard projectiles in the

Blue Grass stockpile, many of which have been found unsuitable for processing through the main plant.



# PEO Aviation

Building 5681 Wood Road, Redstone Arsenal, AL 35898 • 256-955-0414



**Program Executive Office Aviation (PEO Aviation)** leads and executes the life cycle management for all Army aviation weapon systems. The organization serves Soldiers and the nation by designing, developing, delivering and supporting advanced aviation capabilities for operational commanders and allies.

PEO Aviation is statutorily responsible for the execution of nine Major Defense Acquisition Programs representing 30 percent of Army Acquisition, and serves as the Milestone Decision Authority (MDA) for 15 programs of record with a robust portfolio of supporting capabilities. In addition to supporting Combat Aviation Brigades (CABs) and Combatant Commands (COCOMs), PEO Aviation provides critical aviation capabilities to support U.S. Forces in Iraq and Combined Joint Special Forces Task Force in Afghanistan. The organization also supports U.S. government agencies (such as the U.S. Army National Guard and Department of Homeland Security); and approximately 70 partner nations through Foreign Military Sales.

PEO Aviation is best known for the Apache, Black Hawk, Chinook, Gray Eagle and Shadow programs. It is also known for support systems such as Lakota for aviation training and light utility; the C-12 family of fixed wing; and Non-Standard Rotary Wing aircraft. Aviation systems products support radio and ground support equipment used across platforms. PEO Aviation also provides forward-deployed pilots, training and logistics to COCOMs.

In addition to fielding complex weapon systems, Project Managers respond to the COCOMs urgent operational needs. In 2017, the workforce delivered more than 20 quick-reaction capabilities to the COCOMs, ranging from critical intelligence, reconnaissance and surveillance missions to the integration of new weapons on existing systems, such as HELLFIRE missiles on an MQ-1C Gray Eagle. Readiness and modernization efforts focus on increasing the reach, protection and lethality of assigned platforms. The development of open systems architecture, manned-unmanned teaming and cybersecurity, incremental enhancements and breakthrough technologies to address both urgent and emerging threats will ensure the Army's readiness objectives are

met. Simultaneously PEO Aviation looks to design the future CAB and provide integrated sets of capabilities to COCOMs and Soldiers in the field. Today there are more than 4,500 manned aircraft and over 10,000 unmanned aircraft in the Army Aviation inventory.

The PEO Aviation workforce contains the premier experts and leaders in the Army Aviation value chain. Their expertise includes production, requirements validation, identifying optimal materiel solutions, acquisition processes, program planning and budgeting, technical and functional systems integration, and training and sustainment for the entire portfolio.

PEO Aviation's top priority is to reduce the burden on the Soldier, while delivering enhanced capabilities that will enable commanders to execute the challenging missions they perform every day.



# PEO Combat Support and Combat Service Support

6501 E. 11 Mile Road, SFAE-CS, Warren, MI 49397 • 586-282-6963



**Program Executive Office Combat Support & Combat Service Support (PEO CS&CSS)** leads the development, systems integration, acquisition, testing, fielding, sustainment and modernization of critical combat enabling systems across the Army's Transportation, Quartermaster, Ordnance and Engineer portfolios. In total, the PEO CS&CSS portfolio spans roughly 150 active programs across all Acquisition category levels, with more than 100 additional programs in sustainment. When employed as part of lethal Army formations, PEO CS&CSS-managed combat-enablers touch every Soldier in the field every day—forming the backbone of the operational joint force by carrying, supplying, transporting, feeding, fueling, calibrating, maintaining, protecting, powering and fueling combat capabilities across the spectrum of operating environments.

Through careful, deliberate modernization efforts, the PEO CS&CSS team continues to enhance materiel readiness by quickly delivering capabilities to Soldiers that directly drive the operational mobility, sustainment and protection of the Army's Modernization Priorities. As a result, the PEO CS&CSS team fields more than 10,000 pieces of equipment each year, supporting critical activities like the European Deterrence Initiative and more than 20 urgent needs from warfighters engaged in combat operations. The team is also piloting new acquisition authorities to accelerate capabilities like the Squad Multipurpose Equipment Transport (SMET) to unburden Soldiers in the field. The innovative SMET strategy leverages robust industry collaboration and is beginning a year-long demonstration inside operational Infantry Brigade Combat Teams to ensure final program requirements incorporate robust warfighter feedback early in the process.

PEO CS&CSS includes:

- *Project Manager Transportation Systems*, which “moves the Army” by managing the entirety of the Army's Heavy Tactical Vehicle fleet, Medium Tactical Vehicle fleet, Mine Resistant Ambush Protected and route clearance vehicles, and all Army Watercraft Systems.
- *Project Manager Force Projection* provides Soldiers with an array of combat-enabling gear, including testing, maintenance, bridging, combat engineer,

materiel handling, and petroleum and water storage and distribution systems. This team also manages the Army's priority to enhance the use of robotic and autonomous systems, leveraging new acquisition tools to standardize robotic interfaces, unburden Soldiers in the field, develop a common controller for ground and aerial unmanned systems, and bring new robotic systems and autonomous vehicle technologies to the force.

- *Joint Program Office Joint Light Tactical Vehicles (JLTV)* works closely with the Marine Corps while managing the Army's light tactical fleet, including sustainment of the venerable High Mobility Multipurpose Wheeled Vehicle, finalizing fielding plans for the leap-ahead automotive technologies in the JLTV, and accelerating delivery of mobility advancements for dismounted infantry in the Ground Mobility Vehicle.
- *Project Manager Expeditionary Energy & Sustainment Systems* powers, shelters and feeds the force by developing advancements to reshape efficient field basing technologies that reduce fuel, water and Soldier demands; implementing microgrid technologies for more intelligent power usage; and rapidly prototyping the next generation of mobile camouflage to give Soldiers the edge against an increased spectrum of adversary sensor threats.



# PEO Command, Control, Communications-Tactical



6590 Reconnaissance Street, Building 6010, Aberdeen Proving Ground, MD 21005 • 443-395-8248

**Program Executive Office Command, Control, Communications-Tactical (PEO C3T)** develops, acquires, fields and supports the Army's tactical network, a critical priority that brings information dominance to current and future Soldiers. PEO C3T's mobile tactical network provides capabilities that give commanders a resilient, redundant, easy-to-use and mobile interoperable tactical network.

Today, PEO C3T is working across the Army Staff, requirements community and U.S. Army Forces Command to improve the Army's current tactical internet, to field secure and reliable communications that allow commanders to stay connected and informed at all times, even in the most austere and hostile environments. The goal is to deliver a pervasive, integrated network that provides Soldiers with the information they need from garrison to foxhole, while simplifying the tactical network so it is easier to use, train on, maintain and sustain. A simplified network will also continue to drive cost savings by combining hardware and other infrastructure, reducing software development efforts and decreasing the field support required to train Soldiers, troubleshoot systems and sustain equipment.

PEO C3T's first priority remains supporting deployed forces. In 2017, the PEO fielded network capabilities to more than 75 Army, Army Reserve and Army National Guard units. In 2018, as the Army works to standardize its tactical network mission command application software baseline, PEO C3T plans to field upgraded capability to more than 200 units. PEO C3T's equipment and personnel support overseas operations, including Operation United Assistance, Operation Resolute Support, Operation Inherent Resolve and Europe/Pacific/Africa support operations.

Now, in support of Army readiness and modernization priorities, which call for versatility, mobility and interoperability with joint and coalition partners, PEO C3T is preparing for the future. The team is focused on modernizing and improving the Army's lower tactical internet, upper tactical internet, mission command applications and command posts. Key technology enhancements will remove network complexity, provide resilient protected communications and ensure access to an expeditionary and scalable capability that provides

users with a common, intuitive experience. PEO C3T is also executing network cyber defense and providing tools to operate in degraded environments, while also identifying and adapting to malicious threats.

PEO C3T staff supports more than 24 key Acquisition programs and efforts with expertise in the areas of computer science, program management, engineering, information technology, security, logistics, contracting, procurement, accounting and budgeting. At any given moment, PEO C3T is at the Soldier's side, whether in combat training centers or remotely at outside continental U.S. locations.



# PEO Enterprise Information Systems

9350 Hall Road, Building 1445, Room 159, Fort Belvoir, VA 22060 • 703-806-2195



## Program Executive Office Enterprise Information Systems (PEO EIS)

provides information technology network and day-to-day business systems that keep the Army running. The PEO's diverse portfolio of 34 program offices and 70 Acquisition programs support Army and Department of Defense (DOD) communications, logistics, medical, finance, personnel, training and procurement operations.

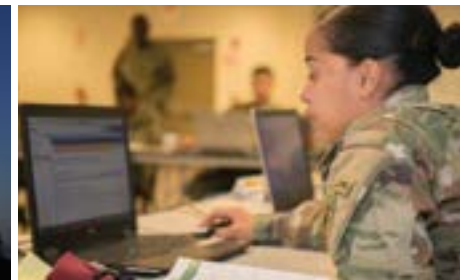
Providing Army leaders with the data they need to make informed decisions is critical to readiness. PEO EIS leads the Army's effort to modernize and merge legacy stove-pipe systems into one integrated enterprise to make data accessible and intuitive so Soldiers have what they need to complete the mission. Enterprise Resource Planning systems (ERPs) provide timely logistics visibility, enhance operational decision-making, and deliver the Army's logistics and financial solutions, improving operational readiness around the world. Delivering uninterrupted connectivity to Army posts, camps and stations across the globe is critical and made possible through terrestrial and satellite communications systems, and enterprise systems.

A resilient and interoperable joint network connected across the tactical, strategic and enterprise levels is more critical than ever. Aligned with the Army's network modernization efforts, PEO EIS is shrinking the physical footprint of the existing network, reducing costs and introducing advanced technical solutions that increase capabilities and secure global connectivity. Home Station Mission Command Centers offer a suite of standardized capabilities used at corps, division and theater headquarters, allowing expeditionary mission command during all operational phases. A network comprised of intuitive, secured and standards-based capabilities are adapted to a commander's requirements and integrated into a common operating environment.

PEO EIS is the Army's technical leader for business information systems focused on driving Army transformation through innovation. ERPs and business systems are improving the Army's efficiency and accuracy, facilitating better decision-making for leaders through increased resource visibility across the force, specifically through four key programs:

- *General Fund Enterprise Business System (GFEBS)*, the Army's financial, asset and accounting management system, and the foundation for Army audit readiness. It standardizes, streamlines and shares critical data across the enterprise to advance real-time resourcing decisions.
- *Global Combat Support System-Army* provides modernized supply, maintenance, property book and related financial tracking capabilities from the warehouse and installation level down to the company and supply point level.
- The *Logistics Modernization Program* is a fully fielded and supporting Working Capital funded operation. While in Sustainment, the program continues to support critical enhancement initiatives to improve readiness and the Army's ability to track and manage materiel in real-time.
- The *Integrated Personnel and Pay System-Army (IPPS-A)* is a fully integrated Human Resources solution that standardizes, streamlines and integrates Soldier personnel and pay processes across the Total Force.

PEO EIS is improving the way the Army does business through innovative acquisition solutions that break traditional molds to acquire and deliver critical capabilities to ensure Army readiness. From logisticians managing Army depots, to medics transmitting a wounded Soldier's vital signs, and network engineers building a high-speed information technology network, PEO EIS supports every Soldier, every day, everywhere.





# PEO Ground Combat Systems



6001 E. 11 Mile Road, Warren, MI 49397 • 586-282-6662

**Program Executive Office Ground Combat Systems (PEO GCS)** is responsible for providing world-class affordable, relevant and sustainable ground combat equipment to joint warfighters. The portfolio includes the Abrams Main Battle Tank, Bradley Family of Vehicles (FoV), Towed and Self-propelled Howitzer Systems (M109A7), Stryker FoV, M88 HERCULES and the Armored Multi-Purpose Vehicle. With a focus on developing advanced technologies, PEO GCS is leading the design and development of the Army's Mobile Protected Firepower program and the Next-Generation Combat Vehicle, the Army's highest priority combat vehicle. Additionally, PEO GCS is conducting rapid installation and characterization of Non-Developmental Item Army Prepositioned Stock (APS) systems on various combat vehicle platforms (Abrams, Bradley and Stryker) to support future APS decision points. Foreign Military Sales (FMS) are also vital to the portfolio, supporting U.S. national security and foreign policy objectives.

- *Project Manager Armored Fighting Vehicles* is responsible for the life cycle logistics of the Bradley FoV and Self-Propelled Howitzer Systems.
- *Project Manager Armored Multi-Purpose Vehicle (AMPV)* replaces the M113 FoV, which comprises 32 percent of the Armored Brigade Combat Team (BCT) vehicle fleet. The AMPV FoV will provide improved mobility, survivability, force protection and size, weight, power and cooling to incorporate future technologies and the inbound Army's network. The AMPV will replace five M113 FoV mission roles with the following variants: Mission Command, Medical Treatment, Medical Evacuation, General Purpose and Mortar Carrier.
- *Project Director Main Battle Tank Systems* provides life cycle logistics for the M1 Abrams and M88 FoV and manages FMS. These programs are supported by a diverse team of Acquisition professionals to modernize, deliver and sustain combat power for the joint warfighter and strategic partners.
- *Project Manager Stryker Brigade Combat Team* provides proven acquisition, development and sustainment of the Stryker FoV that afford the warfighter quick response maneuvering, enhanced survivability and lethality, expanded fight versatility and proven tactical agility.

- *Project Manager Mobile Protected Firepower* provides Infantry BCTs with mobile, protected direct fire capability to apply lethal and sustained long-range fires to armored vehicles, hardened enemy fortifications and dismounted personnel.



# PEO Intelligence, Electronic Warfare and Sensors



6585 Surveillance Loop, Building 6002, Aberdeen Proving Ground, MD 21005 • 443-861-7881

**Program Executive Office Intelligence, Electronic Warfare and Sensors (PEO IEW&S)** adheres to a simple, but powerful, mission statement: "Deliver capability to Soldiers now through affordable and adaptable programs that pace the threat." PEO IEW&S systems are proven lifesavers on the battlefield. Therefore, the men and women of this organization passionately tackle the mission of getting superior technological solutions into Soldier's hands to ensure overmatch that overwhelms any potential threat.

Headquartered at Aberdeen Proving Ground, Maryland, PEO IEW&S has teams located at Fort Belvoir, Virginia, Redstone Army Arsenal, Alabama, and Los Angeles Air Force Base, California. PEO IEW&S has seven subordinate organizations that manage more than 100 programs of record and quick reaction capabilities.

PEO IEW&S's extremely diversified portfolio supports a wide range of organizations throughout the Army, as well as joint and coalition partners. With multiple portfolios under one umbrella, PEO IEW&S is involved in Space; Force Protection; Intelligence, Surveillance, and Reconnaissance (ISR); Cyber; Electronic Warfare; Mission Command; Aviation and Fires.

Responsibilities of each Project Manager (PM) are as follows:

- *PM Aircraft Survivability Equipment* develops and fields world-class aircraft survivability systems that maximize the survivability of Army aircraft against a continually evolving threat without degrading combat mission effectiveness. Ensures aircrews and their aircraft are protected against all emerging threats, regardless of airframe or mission.
- *PM Department of Defense (DOD) Biometrics* designs, engineers, acquires, deploys and sustains enterprise biometric solutions in multiple operating environments enabling identity dominance on the battlefield and across DOD. These solutions, including biometric tactical collection devices and the authoritative biometric data repository, enable identity dominance for U.S. forces, interagency partners and international allies on the battlefield and around the globe.

- *PM Distributed Common Ground System-Army (DCGS-A)* provides the foundation capabilities for DCGS-A to support the Army's ISR mission for Processing, Exploitation and Dissemination (PED) of information and intelligence data across echelons.
- *PM Electronic Warfare and Cyber* acquires integrated intelligence, electronic and cyber warfare capabilities that provide spectrum and cyberspace superiority to enable freedom of maneuver on the battlefield.
- *PM Positioning, Navigation and Timing (PNT)* provides optimal and affordable positioning, navigation and timing capabilities with designs, products and solutions that promote decisive action in all Army operations. Create, influence and enable partnerships to deliver integrated PNT capabilities that positively impact the battlespace in any operational environment.
- *PM Sensors-Aerial Intelligence* develops, acquires, fields and supplies life cycle support to modernized, integrated, tactically relevant aerial ISR sensor payloads while leveraging national capabilities as well as providing for PED of intelligence products to support the warfighter with actionable intelligence in the right place, right time and at the best value for the nation.
- *PM Terrestrial Sensors* ensures battlefield dominance by delivering innovative and persistent ISR and force protection sensor capabilities for the Army to fight tonight.



# PEO Missiles and Space

5250 Martin Road, Redstone Arsenal, AL 35898 • 256-313-3411



**Program Executive Office Missiles and Space (PEO MS)** develops, fields and sustains Missile and Space Systems that provide a decisive battlefield advantage for U.S. and coalition warfighters. To accomplish this, PEO MS provides centralized management for all Army tactical and air defense missile programs and designated space programs. To enhance multidomain warfighting capabilities, PEO MS serves as a key link between the warfighter and the technology base to ensure that integration and interoperability are achieved with Army programs. To meet the needs of the warfighter, PEO MS manages eight Project Offices responsible for 34 programs of record.

- *Integrated Air and Missile Defense (IAMD) Project Office* is responsible for developing, acquiring, fielding and sustaining the IAMD Battle Command System within an overarching construct that supports the integration of current and future sensors and weapons providing an effective capability at all echelons.
- *Lower Tier Project Office* develops, produces, fields and sustains air and missile defense systems to defend the lower tier within the terminal defense segment of the Ballistic Missile Defense System architecture.
- *Cruise Missile Defense System* is responsible for delivering the materiel solutions that provide warfighters the ability to detect and defeat cruise missiles, unmanned aircraft systems, rotary/fixed wing threats, and rockets, artillery and mortars.
- *Counter-Rocket, Artillery, Mortar Project Office* provides for the overall life cycle management of automated air and missile defense command and control systems, force protection systems-of-systems and counterfires/counter target acquisition radars.
- *Missile Defense and Space Systems Project Office* provides Army Acquisition expertise and management for several missile defense and space system related areas.
- *Precision Fires Rocket and Missile Systems Project Office* provides for the Precision Fires family of launchers and munitions in support of the warfighter's long-range field artillery requirements.
- *Joint Attack Munition Systems Project Office* provides life cycle support for all Army aviation rockets, launchers and missiles.

- *Close Combat Weapon Systems Project Office* provides the best capabilities in a timely, reliable and responsive manner in support of warfighter needs at home and abroad.

In support of the Army Modernization Strategy and the newly established Army Futures Command, PEO MS directly supports the Long Range Precision Fires and Air and Missile Defense priorities and contributes to Soldier Lethality, Positioning Navigation Timing, and the Future Vertical Lift Cross-Functional Teams (CFT). It accomplishes this through active Program Manager participation directly within the CFT, helping to ensure rapid prototyping and fielding efforts can be properly aligned to the longer term modernization strategy to ensure capabilities can be properly matured and sustained.

To accelerate weapon system fielding, PEO MS assesses warfighter feedback and works collaboratively with the commercial defense and organic industrial base to identify and implement projects that leverage commercial innovation, cutting-edge Science and Technology, and prototyping thereby using the strengths of all sectors. This exchange of ideas and innovation is critical to improve readiness, harness efficiencies and accelerate delivery of priority capabilities.



# PEO Soldier

5901 Putman Road, Building 328T, Fort Belvoir, VA 22060 • 703-704-2802



**Program Executive Office Soldier (PEO Soldier)** is involved in the development and procurement of all that Soldiers wear, as well as the pieces of equipment they carry. Ensuring Soldiers are equipped at the leading edge of innovation has been PEO Soldier's driving mission since its inception in 2002. PEO Soldier's approach is to view the Soldier as an integrated weapons platform to ensure better operational performance while reducing the load carried.

PEO Soldier manages more than 450 products and programs that are a culmination of the organization's dedication to enhancing Soldier performance. The following four Project Management (PM) Offices provide the very best equipment to enable mission success.

- *Project Manager (PM) Soldier Protection and Individual Equipment* develops and fields advanced Soldier protection products, comfortable uniforms that enhance mission effectiveness and improved parachute systems. These products are designed to protect Soldiers and allow them to operate in any condition.
- *PM Soldier Sensors and Lasers (SSL)* provides Soldiers with improved lethality, mobility and survivability in all weather and visibility conditions. Sensor and laser systems developed by PM SSL provide critical, on-the-ground direct support to the U.S. Armed Forces. Soldier-borne sensors and lasers enhance the ability to see in all battlefield and lighting conditions, to acquire objects of military significance before being detected, and to target threat objects accurately for engagement by Soldiers or guided munitions.
- *PM Soldier Weapons (SW)* ensures that Soldiers on the battlefield have overmatch capabilities in individual and crew-served weapons. PM SW supports Soldiers through the development, production, fielding and sustainment of current and future weapons systems, as well as associated target acquisition/fire control products. As a result of PM SW's efforts, Soldiers benefit from continuous improvement programs and are equipped with systems that enhance both survivability and lethality.
- *PM Soldier Warrior (SWAR)* supports Soldiers through the acquisition of integrated systems. PM SWAR product managers develop and integrate components into complete systems designed to increase Soldiers'

situational awareness and combat effectiveness, decrease combat load and improve mission flexibility.

The Army Vision focuses on being ready to deploy, fight and win decisively against any adversary, anytime and anywhere. Lethality and survivability are at the core of PEO Soldier's work, and the organization remains dedicated to the Army's continued modernization efforts. Working with Cross-Functional Teams, PEO Soldier is committed to leveraging commercial innovation, cutting-edge science and technology, prototyping and warfighter feedback to ensure Soldiers have the decisive advantage over potential adversaries.

This PEO provides Soldiers with the finest equipment and protection available as quickly as possible, investing in our Soldiers to give them the decisive edge while also being good stewards of taxpayer resources. Because of these efforts, the Army and the nation's Soldiers are ready to fight tonight.



# PEO Simulation, Training and Instrumentation

12211 Science Drive, Orlando, FL 32826 • 407-384-3500

The mission of **Program Executive Office Simulation, Training and Instrumentation (PEO STRI)** is to "Develop, Acquire and Sustain Simulation, Training, Testing and Modeling Solutions to Optimize Warfighter Readiness," ensures, through modernization efforts, Soldiers have the high-fidelity, realistic training and testing products to remain second to none on the battlefield. Deploying Soldiers use PEO STRI products to train and hone their critical warfighting skills. PEO STRI continues to accomplish its mission, with an eye on evolving global challenges facing the nation and allies.

PEO STRI's Project Management Offices and Field Operations office focus on nesting the Army's priorities of readiness, modernization and reform in their programs.

- *Project Manager Training Devices (PM TRADE)* is the Army's provider for instrumented live training systems and virtual simulation solutions. PM TRADE provides Soldiers, leaders and allies realistic environments and enablers across the spectrum of training ensuring sustainable readiness. PM TRADE also delivers the force-on-force and force-on-target training enablers supporting both home station and Combat Training Center exercises, including instrumentation and tactical engagement simulation systems.
- *Project Manager for Integrated Training Environment (PM ITE)* is modernizing realistic training by converging virtual, constructive and gaming products into one organizational structure maximizing benefits from blended capabilities with live training. PM ITE enables realistic training through the replication of the uncertainty, stress and complexity found in operational environments. The office also provides commanders the ability to train the full range of military operations within current or projected training space in large-scale home station exercises.
- *Project Manager for Instrumentation, Targets, Threat Simulators and Special Operations Training Systems (PM ITTS)* supports multiple communities in the Department of Defense (DOD). PM ITTS serves as the life cycle manager of major test instrumentation, aerial, surface and virtual targetry, Army and Special Operations Forces training, and Cyber Electromagnetic Activities. On behalf of the Office of the Secretary of Defense, PM ITTS

manages multiple Science and Technology, and Central Test and Evaluation Investment Program efforts, including the National Cyber Range Complex, which ensures cyber training readiness.

- *Joint Project Manager for Medical Modeling and Simulation (JPM MMS)* develops, acquires and sustains medical training aids, devices, simulators and simulations supporting the military services' medical training requirements for continued readiness across the full Continuum of Care. JPM MMS delivers premier live, virtual, constructive and gaming materiel solutions across the Military Health System as the DOD leader in medical simulation.
- *Field Operations* executes life cycle support and management services meeting Army and other customer-specific ongoing and future modernization requirements. The office provides worldwide training aids, devices, simulators and simulations maintenance, operations, sustainment and readiness training support services to Army garrisons, Combat Training Centers and deployed areas of operation.

PEO STRI provides field training aids, devices, simulators and simulations to Active Army and Reserve Component units at 130 locations in 37 states. They are also fielded at 12 locations in United States Army Europe and nine locations within United States Forces Korea. PEO STRI's Foreign Military Sales supports over 58 countries. "We work for our Soldiers. It's the best job we've ever had," is not just PEO STRI's motto, it's with that thought each and every aspect of the mission is accomplished.



# Joint PEO Chemical, Biological, Radiological and Nuclear Defense

Aberdeen Proving Ground, Edgewood, MD 21010 • 410-436-9000



**Joint Program Executive Office Chemical, Biological, Radiological and Nuclear Defense (JPEO CBRND)** is the Joint Service's lead for the development, acquisition, fielding and life cycle support of CBRN defense equipment and medical countermeasures. JPEO CBRND puts capable and supportable systems in the hands of Service members and first responders, when and where it is needed, and at an affordable price. JPEO CBRND's vision is a resilient and lethal joint force enabled to fight and win unencumbered by a chemical, biological, radiological or nuclear environment; championed by innovative and state-of-the-art solutions. Five unique Project Management Offices (PMO) manage the Acquisition of CBRN defense equipment, serving as enablers to achieve national security strategies and support the U.S. Armed Forces. These PMOs, along with interagency, international and industry partnerships, have the experience and expertise to rapidly deliver solutions.

- **Modernization:** JPEO CBRND is changing the approach to modernization and considering multiple possible futures and leveraging commercial innovations, cutting-edge Science and Technology and warfighter feedback. JPEO CBRND is moving away from the old paradigm of developing items as single, stand-alone products, to a more holistic approach of developing and integrating capabilities. The result is sets of solutions that span the entire CBRN defense portfolio, providing an integrated and layered defense capability to the warfighter. This strategy is vital to providing early warning, situational awareness and understanding of asymmetric and unpredictable threats to the nation's security. Additionally, JPEO CBRND is leveraging structured approaches through experimentation to improve tools, adopt new processes, assess and deliver technologies to joint forces on the multidomain battlefield.
- **Readiness:** JPEO CBRND will address vulnerability gaps through responsible resourcing, technology insertion and modernization to meet warfighter and national security requirements. Readiness depends on the ability to collaborate with Department of Defense (DOD) partners, take advantage of academia and engage with industry. By doing so, technologies in the field are greatly advanced and further integrated to provide early decision and support.

- **Reform:** The National Defense Strategy and JPEO CBRND's strategic guidance on streamlining acquisition calls for rapid iterative approaches to reduce risk and cost. Streamlining the acquisition process is necessary for maintaining a technological edge and taking advantage of business practices that bring capabilities to the warfighter faster. The intent is to focus on rapid platform and autonomous technology development to maintain the technological edge.

JPEO CBRND is also taking advantage of acquisition tools that allow for engagement with industry and interagency partners sooner, and incorporate feedback from the warfighter and end user earlier. JPEO CBRND's contracting toolbox leverages Other Transaction Authority (OTA) in the medical space with the Medical CBRN Defense Consortium (MCDC), and the JPEO created an overarching OTA that can be used by all of DOD for Combatting Weapons of Mass Destruction. The MCDC includes leading pharmaceutical, academic and medical research entities in the U.S. Together they will enhance military mission effectiveness by providing advanced development in support of DOD's medical pharmaceutical and diagnostic requirements.



# Army Rapid Capabilities Office

10100 Newton Road, Building 333, Fort Belvoir, VA 22060 • 703-614-4987



Supporting the ASA(ALT) mission, the **Army Rapid Capabilities Office (RCO)**, expedites critical capabilities to the field to meet Combatant Commanders' needs and Army Modernization Priorities. Created in August 2016, RCO enables the Army to experiment, evolve and deliver technologies to address both urgent and emerging threats, while supporting acquisition reform efforts.

RCO develops, acquires, integrates and equips selected capabilities; implements streamlined acquisition methods, processes and techniques; and acts as an agent of change by challenging traditional approaches. Primarily focused on the highest priority Army requirements at the direction of the Secretary of the Army, the Chief of Staff of the Army and the Army Acquisition Executive, the RCO delivers operational effects within one to five years and is complementary to programs of record that aim deeper into the future and equip the entire Army.

In its first year of existence, the Army RCO successfully executed a rapid prototyping project to provide integrated electronic warfare systems that close urgent capability gaps in Europe and enable Soldiers to fight and survive in contested environments. Provided in response to an operational needs statement from U.S. Army Europe, these technologies are interim solutions designed as a bridge to enduring electronic warfare programs of record. This approach adapted existing systems and incorporated emerging technologies to provide new electronic warfare effects and counter the emerging threat.

Working in partnership with the Army Futures Command, Cross-Functional Teams and Program Executive Offices, the RCO plays a critical role in ensuring the Army is ready today and prepared for tomorrow. It serves as a direct pipeline that commanders can access quickly to meet real-time demands, while building an advantage for those who will follow in their footsteps.

Current RCO priority areas include:

- *Electronic Warfare*
- *Positioning, Navigation and Timing*
- *Long Range Cannon*
- *Optical Augmentation*

- *Loitering Air Munitions*
- *Counter-Unmanned Aerial Systems*
- *Active Protection Systems*
- *Cyber*
- *Artificial Intelligence*
- *Future Vertical Lift*

RCO incorporates early and prominent warfighter involvement into the requirements gathering and prototyping process to ensure materiel solutions are not only vetted by operators, but also delivered to units as a holistic capability with the right support and tactics, techniques and procedures in place.

Within the Army RCO is a dedicated cell known as the Emerging Technologies Office (ETO). The ETO's mission is to directly and continuously align, understand and drive academia, industry and Science and Technology solutions to near-term and emerging threats with development and demonstration of revolutionary new capabilities while leveraging innovation by other government agencies and industry partners.



# U.S. Army Acquisition Support Center

9900 Belvoir Road, Fort Belvoir, VA 22060 • 703-664-5600



The **U.S. Army Acquisition Support Center (USAASC)** shapes and develops the capabilities of the more than 39,000 member-strong Army Acquisition Workforce through superior support and development of world-class professionals, enabling excellence in the acquisition community and ensuring that Soldiers have the capabilities to win across multiple missions, conditions and geographies.

Established in 2002, USAASC provides oversight of the Army Acquisition Corps and is a direct reporting unit to ASA(ALT). USAASC provides oversight for the force protection mission executed by the Program Executive Offices (PEOs), acquisition career management support for the Army Acquisition Workforce, and subject-matter expertise and analytical support to various Department of Defense (DOD) elements.

USAASC performs several core functions for its stakeholders:

- Policy, guidance and support for the Army Acquisition Executive, the Director of Acquisition Career Management, ASA(ALT) staff and the Army Acquisition community through developing, implementing and overseeing Acquisition initiatives and key issues
- Subject matter expertise and analytical support to the ASA(ALT) and various DOD elements, including the Undersecretary of Defense for Acquisition and Sustainment
- Acquisition career management and development support for the Army Acquisition Workforce. Support in the form of plans, policies, programs and direct support to Acquisition organizations, supervisors and individual members
- Communicating the Army Acquisition Corps' vision and mission within the Acquisition community and across the Army enterprise, primarily through Army AL&T magazine, the Army AL&T News blog and a broad, engaged social media presence
- Customer service and support to PEOs, for the execution of the PEOs' force protection mission and in the areas of human resources, program structure and Acquisition information management

- Institutional management of the Army Acquisition Corps and the Army Acquisition Workforce. The director of USAASC is also the Director of Acquisition Career Management, and works with the Principal Military Deputy to the ASA(ALT), who serves as the Director of the Army Acquisition Corps, to oversee the Army Acquisition Workforce.





# U.S. Army Medical Research and Materiel Command



810 Schreider Street, Fort Detrick, MD 21702 • 301-619-2736

Receiving acquisition oversight from ASA(ALT), the **U.S. Army Medical Research and Materiel Command (USAMRMC)** is the Army's medical materiel developer, with the responsibility for medical research, development, and acquisition and medical logistics management. Medical information and products developed and fielded by the USAMRMC protect and sustain the health and safety of the force prior to, during and following deployment, save lives once injured, and assist in recovery, enabling the Army's modernization, readiness and reform priorities.

USAMRMC's mission is to responsively and responsibly create, develop, deliver and sustain medical capabilities for the warfighter. The vision is to lead the advancement of military medicine. The Command is headquartered at Fort Detrick, Maryland, with 12 subordinate commands located throughout the world. Six medical research laboratory commands execute the research and technology program to investigate medical solutions (knowledge and materiel) for military missions. An additional six subordinate commands are responsible for product development and acquisition, medical systems management, strategic and operational medical logistics, and contracting activities.

- **Readiness:** USAMRMC's platform is the Soldier. Medical readiness enables Soldier readiness, which allows the Army to fight today, and prepare for the fight tomorrow. USAMRMC investments provide innovative medical solutions to address validated high-risk capability gaps such as providing prolonged care at the point of need. Improving Soldier readiness includes providing capabilities to prevent injuries, and when prevention fails, to improve patient care from the point-of-injury through the field hospital.
- **Modernization:** As a full life cycle command, USAMRMC encompasses research and technology (including basic to applied research for knowledge and materiel), product development and systems management (including program management, assembly management, and developmental test and evaluation), contracting and grants managements, and sustainment (including logistics and maintenance). This integration allows for a holistic approach to rapidly and effectively develop, procure, field and maintain medical materiel. When available, commercial solutions and innovations are

leveraged to modernize existing capabilities. USAMRMC leads research and development when the issue is military unique, industry/academia lack interest, a solution is urgently required or Congressionally directed.

- **Medical Prototype Development Lab:** This asset has the ability to design, develop and quickly prototype far-forward medical equipment. Core capabilities include 3-D computer-aided design and manufacturing; as well as, prototype development and fabrication.
- **Reform:** USAMRMC is dedicated to rapidly fielding effective and operationally suitable medical solutions. In accordance with acquisition streamlining and reform, the Command established Acquisition Category IV programs and implemented "Smart Contracting," leveraging Other Transaction Authority (OTA) and the Economy Act.

Through a 10-year renewable OTA agreement with the Medical Technology Enterprise Consortium, USAMRMC accesses over 215 small and large business, academic, not-for-profit and non-traditional government contractor organizations. This contracting vehicle enables maximum flexibility, cost-sharing and prototype acceleration. USAMRMC leverages the Rapid Equipping Force to provide innovative potential solutions to address urgent requirements. This process assists with developing and validating solutions in the operational environment.



# How to Use this Book

ACAT level tabs

- ACAT I/BSC I
- ACAT II
- ACAT III
- ACAT IV

Highlighted tabs indicate Modernization Priority

Highlighted tabs indicate Acquisition Life Cycle Phase

System name

PEO name and location

PEO logo

Contractor locations are highlighted

Foreign Military Sales

Contractor and location

**ACAT I**  
**PAC-3**  
PAC-3 Advanced Capability-3  
PEO Missiles and Space | Redstone Arsenal, AL

**DESCRIPTION**  
The PAC-3 Advanced Capability-3 (PAC-3 AC) is the Army's premier guided air and missile defense (GMD) system providing high altitude air to air capability in both range and altitude of its existing GMD environment.

**ACQUISITION LIFE CYCLE PHASE**  
Engineering & Development

**PROJECTED ACTIVITIES**  
• PAC-3 AC capability integration with the Integrated Air and Missile Defense Battle Command System  
• Execute PAC-3 AC P&P  
• Support a Foreign Military Sales request for PAC-3 AC

**CONTRACTOR AND LOCATION**  
PAC-3  
Foreign Military Sales  
Contractor and location

## ACQUISITION CATEGORY

The tab in the top left corner indicates the program's Acquisition or Business System Category. The programs are arranged alphabetically within each section.

## MODERNIZATION PRIORITY

This tab identifies the program's modernization priority. Some programs do not directly support one of the six Army Modernization Priorities and therefore do not have a priority selected. Other programs may support more than one Priority.

- **Long-Range Precision Fires.** Develop platforms, capabilities, munitions and formations that restore U.S. Army dominance in range, lethality, mobility, precision and target acquisition.
- **Next Generation Combat Vehicles.** Develop combat vehicles that integrate other close combat capabilities in manned, unmanned and optionally manned teaming that leverages semi-autonomous and autonomous platforms in conjunction with the most modern firepower, protection, mobility and power generation capabilities necessary to ensure that our future combat formations can fight and win against any foe, in any environment.
- **Future Vertical Lift.** A set of manned, unmanned and optionally manned platforms that can execute attack, lift and reconnaissance missions on the modern and future battlefield at greater range, altitude, lethality and payload.
- **Army Network.** An integrated system of hardware, software and infrastructure that is sufficiently mobile, reliable, user-friendly, discreet in signature, expeditionary and can be used to fight effectively in any environment where the electromagnetic spectrum is denied or degraded.
- **Air and Missile Defense.** A series of mobile integrated platforms, capabilities, munitions and formations that ensure our future combat formations are lethal while remaining protected from modern and advanced air and missile delivered fires, to include drones.
- **Soldier Lethality.** A holistic series of capabilities, equipment, training and enhancements that span all fundamentals of combat: shooting, moving, communicating, protecting and sustaining to ensure our Soldiers are more lethal and less vulnerable on the modern battlefield. This will include not only next generation individual and squad weapons, but also improved body armor, sensors, radios and load-bearing exoskeletons. These efforts will be joined by research in improved human performance and decision-making.

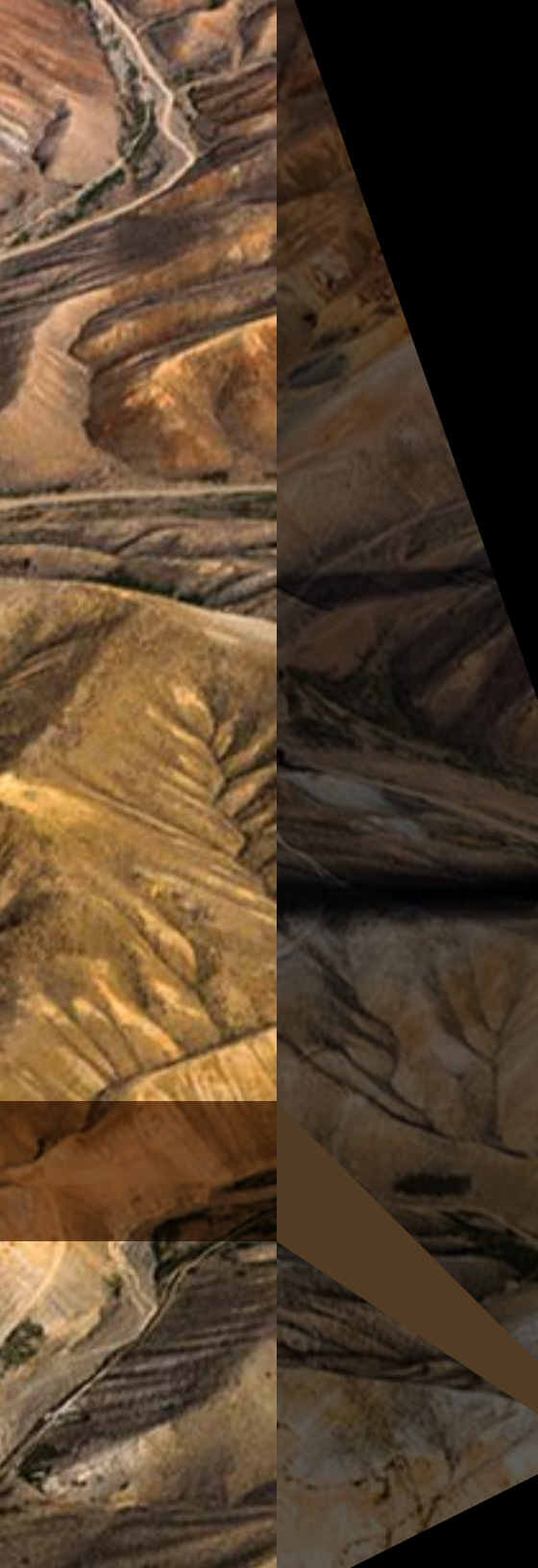
## ACQUISITION LIFE CYCLE PHASE

This tab identifies the program's Acquisition Life Cycle Phase(s).

- **Materiel Solution Analysis** performs analysis needed to choose a product or system concept, identifies capability gaps, translates into system-specific requirements and conducts planning to support an acquisition strategy.
- **Technology Maturation & Risk Reduction** reduces technology risk, determines and matures the technologies to integrate into a full system, and demonstrates on prototypes. This is a continuous discovery and development process.
- **Engineering & Manufacturing Development** develops a system, completes full system integration, plans a feasible and affordable manufacturing process, and demonstrates system integration, interoperability and utility. This phase includes system integration, system demonstration and interim progress review.
- **Production & Deployment** achieves an operational capability that satisfies mission needs. Components of this phase include Low Rate Initial Production, Full Rate Production Decision Review, Full Rate Production and Deployment, and Military Equipment Evaluation.
- **Operations & Support** executes a support program that meets materiel and performance requirements in the most cost-effective manner over the system's total life cycle.

Because the Army is spiraling technology to warfighters as soon as feasible, some programs and systems may be in all four acquisition life cycle phases at the same time. Mature programs are often only in one phase, such as Operations & Support, while newer systems are usually only found in the Materiel Solutions Analysis or Technology Maturation & Risk Reduction phases.





# WEAPON SYSTEMS **ACAT I**

Listed in alphabetical order

# Abrams Tank Upgrade — M1

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Abrams Main Battle Tank closes with and destroys the enemy using mobility, firepower and shock effect. The Abrams is a full-tracked, low-profile, land combat assault weapon possessing unmatched survivability, shoot-on-the-move lethality and a high degree of maneuverability. The Abrams tank sends a message to those who would oppose the United States as to the resolve, capability and might of the U.S. Army. A 1,500-horsepower turbine engine, 120 mm main gun and special armor make the Abrams tank particularly lethal against heavy armor forces. The Abrams fleet consists of two variants: the M1A1 SA (Situational Awareness) and the M1A2 SEP (System Enhancement Program) version 2. The M1A2C, the latest variant in production, is concluding testing. It will be followed by another variant, the M1A2D, which is in initial development.

The Abrams program is a mature, Acquisition Category IC program. Design decision authority is delegated to Program Executive Office Ground Combat Systems, which further empowers leaders at the lowest level to execute. This creates great Acquisition agility and enables quick reactions to the Army's requirements while focusing on the real-time needs of the warfighting formations.

**M1A1 SA:** Currently in Sustainment and slated for divestment between Fiscal Year 2020 (FY20)-FY25, this variant has a single second-generation Forward-Looking Infrared (FLIR) sight and analog architecture. While less capable, it is just as survivable and maneuverable as the more modern variants. The M1A1 SA has Blue Force Tracker — a digital command-and-control system that gives commanders information about their location relative to friendly forces — and powertrain improvements.

**M1A2 SEPv2:** All M1A2 tanks have two sights, a gunner's and commander's sight, which increase the tank's lethality by enabling a hunter/killer technique — as the gunner destroys targets, the commander can simultaneously survey the battlefield for the next threat. All M1A2s also have digital architectures, which facilitate future upgrades, allow interoperability and ease the maintenance burden. Other upgrades include Common Remotely Operated Weapon Station – Low Profile, an ammunition data link to fire improved rounds, and 12 batteries for longer silent watch. Program Manager Abrams has integrated the Trophy Active Protection System (APS) on the M1A2 SEPv2.

**M1A2C:** The next version of the Abrams tank is in Production and finalizing testing. This version rectifies many of the space, weight and power issues identified during Operation Iraqi Freedom and will be the foundational variant for all future incremental upgrades. In addition to having improved survivability, the Abrams M1A2C can host any mature technology the Army deems operationally relevant. Improvements focus on increasing the electrical power margin, Vehicle Health Management Systems, integrated counter-improvised explosive device protection, a new Auxiliary Power Unit, embedded training and an ammunition data link. It is the most reliable Abrams tank ever produced, will decrease the Army's logistic burden, and leads the Army in enterprise-level connectivity to maintenance and supply systems.

**M1A2D:** The most modern Abrams tank has started development; the cornerstone technology is the third generation (3GEN) FLIR, which will provide tank crews much greater lethality. The 3GEN FLIR will be an upgrade to both sights and will be common with other combat platforms. With the upgrade, the Abrams will integrate a color camera, Eye-safe Laser Range Finder and a cross-platform laser pointer to facilitate

# Abrams Tank Upgrade – M1

multidomain battle in to the commander's sight. In addition to a lethality upgrade, the M1A2D will include full-embedded training to maximize crew proficiency of the system. This program began early enough to on-board any technology the Army deems critical to the future battlefield to include artificial intelligence, autonomy, APS or advanced sensors.

## BENEFIT TO THE SOLDIER

Provides the lethality, survivability and fightability necessary to defeat advanced threats well into the future. The Abrams tank is the Army's primary ground combat system.

## SPECIFICATIONS

- Combat weight (tons): M1A1 SA – 67.6; M1A2 SEPv2 – 71.2; M1A2C – 73.6
- Speed: 42 mph, 30 mph x-country
- M1A1 SA – 120 mm/40 rounds; M1A2 SEPv2 – 120 mm/42 rounds
- Machine guns: .50 caliber - 900 rounds; 7.62 mm - 11,400 rounds

## PROGRAM STATUS

- **FY16:** Start of next generation FLIR development for the Abrams tank
- **FY17:** Abrams M1A2 SEPv2 tank Production complete
- **2QFY17–2QFY18:** Transitions Production from M1A2 SEPv2 to M1A2C through a “Pilot” program
- **FY18:**
  - Start of M1A2C Production
  - Start of M1A2D Development program

## PROJECTED ACTIVITIES

- **FY19-FY20:** M1A2C Testing completed
- **FY20:** M1A2C First Unit Equipped
- **FY19-FY23:** M1A2D Development program continues



## FOREIGN MILITARY SALES

**M1A1:** Australia, Egypt, Iraq and Morocco

**M1A2/M1A2S:** Kuwait and Saudi Arabia

## CONTRACTORS

General Dynamics Land Systems (Sterling Heights, MI)

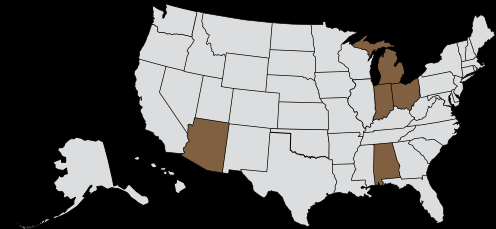
Allison Transmission (Indianapolis, IN)

Honeywell (Phoenix, AZ)

Anniston Army Depot (Anniston, AL)

Joint Systems Manufacturing Center

(Lima, OH)



# Apache Attack Helicopter AH-64D/E

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Apache AH-64D/E is the Army's attack helicopter. It is capable of destroying armor, personnel and materiel targets in obscured battlefield conditions. The Apache is a two-engine, four-bladed, tandem-seat attack helicopter equipped with an M230 30 mm cannon, Hydra-70 2.75-inch rockets, and HELLFIRE missiles (both laser-guided and radio frequency). The current fleet contains both AH-64D Longbow Apaches and the AH-64E models; however, the end state is pure-fleet E-models. The Apache is fielded to both Active Army and Army National Guard armed reconnaissance battalions and cavalry units. The aircraft is designed to support Brigade Combat Teams across the full spectrum of warfare. The current acquisition objective is 812 aircraft.

The AH-64E program is the most current evolution of the Apache. The AH-64E is designed and equipped with open systems architecture to incorporate the latest communications, navigation, sensor and weapon systems. The E-model has multiple upgrades from its predecessors such as the improved Modernized Target Acquisition Designation Sight/Pilot Night Vision System (MTADS/PNVS), which includes a new integrated infrared laser that allows for easier target designation, and enhanced infrared imagery, which blends both infrared and night vision capabilities. The E-model has the updated Small Tactical Terminal radio that includes the LINK 16 capability required to communicate in a joint environment. The updated Fire Control Radar will have the ability to operate in a maritime mode, enabling the Apache to be an integral asset in all fashions and surroundings. The Manned Unmanned Teaming ability of the E model fleet provides Level of Interoperability 4 to Apache crews. This provides Apache crewmembers the ability to receive Unmanned Aerial Systems (UAS) video in the Apache cockpit, control UAS sensors and direct the flight path of the UAS.

The aircraft is also undergoing recapitalization modifications such as the Modernized Day Sensor Assembly. This upgrade will eliminate obsolescence issues while enhancing day sight capabilities equivalent to the changes made with MTADS/PNVS. Other modifications in work include Manned Unmanned teaming that provides non-line-of-sight communications, video transmission/reception and maintenance cost reductions.

The Apache is provided to U.S. allies through a robust Foreign Military Sales (FMS) program. There are currently over 350 Apaches operated by partner nations and 14 active FMS cases.

## BENEFIT TO THE SOLDIER

The Apache provides security to ground forces, fixed based operations and aerial escorts; conducts reconnaissance to provide situational awareness to ground forces and higher headquarters; and decisively engages single or multiple enemy combatants to allow freedom of maneuver or protection. It maneuvers into enemy territory to conduct deep attacks on strategic targets to set the conditions for favorable ground commander objectives and goals. With the Manned Unmanned Teaming capability, the AH-64 is capable of sending real-time situational awareness of the environment and enemy forces to Soldiers in contact.

## SPECIFICATIONS

- Designed and equipped with open systems architecture to incorporate the latest communications, navigation, sensor and weapon systems
- Combat mission speed: AH-64D 145 knots (max speed); AH-64E 164 knots (max speed)
- Combat range: 260 nautical miles
- Combat endurance: 2.5 hours
- Maximum gross weight: 20,260 pounds



- Ordnance: 16 HELLFIRE missiles; 76 2.75-inch rockets and 1,200 30 mm chain gun rounds
- Crew: Two (pilot and copilot/gunner)
- Rate of Fire: 600-650 rounds per minute

### PROGRAM STATUS

- **2QFY17:** Awarded AH-64E Apache multiyear contract for Lot 7 through Lot 11
- **3QFY18:** Department of Army G-8 memo adjusting Army Procurement Objective from 767 to 812 and Army Acquisition Objective of 791 for the AH-64E Apache Helicopter

### PROJECTED ACTIVITIES

- **3QFY19:** Follow-on Test and Evaluation 2

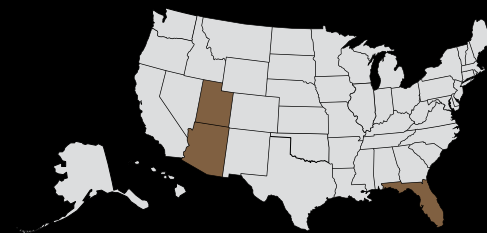
# Apache

### FOREIGN MILITARY SALES

Egypt, Greece, India, Indonesia, Israel, Korea, Kuwait, Netherlands, Qatar, Saudi Arabia, Singapore, Taiwan, United Arab Emirates and United Kingdom

### CONTRACTORS

Boeing (Mesa, AZ)  
Lockheed Martin (Orlando, FL)  
Longbow LLC (Orlando, FL)  
L3 Technologies (Salt Lake City, UT)



# Armored Multi-Purpose Vehicle (AMPV)

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Armored Multi-Purpose Vehicle (AMPV) is the replacement for the M113 Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT), comprising approximately 30 percent of its tracked vehicle fleet.

The General Purpose variant accommodates two crew, six passengers, is reconfigurable to carry one litter, mount crew served weapon, integrates two Joint Tactical Radio System Handheld, Manpack and Small Form Fit (HMS) or two Single Channel Ground and Airborne Radio System (SINCGARS), Vehicle Intercom (VIC)-3, Driver's Vision Enhancer (DVE), Duke v3, and Force XXI Battle Command Brigade and Below (FBCB2)/Blue Force Tracker (BFT).

The Mortar Carrier variant accommodates two crew, two mortar crew, a mounted 120 mm mortar, 69 rounds of 120 mm ammunition, two HMS radios, a SINCGARS radio, VIC-3, DVE, Duke v3, FBCB2/BFT and M95 Mortar Fire Control System.

The Mission Command variant is the cornerstone of the Army's ABCT Network Modernization Strategy. It takes advantage of increased size, weight, power and cooling limitations and provides a significant increase in command, control, communications and computer capability. The variant accommodates a driver and commander and two workstation operators, and its red side network provides full Tactical Command Post capabilities at brigade and battalion levels.

The Medical Evacuation variant includes room for three crew, six ambulatory patients or four litter patients or three ambulatory and two litter patients, two integrated HMS radios, VIC-3, DVE, Duke v3, FBCB2/BFT and the storage for Medical Equipment Sets.

The Medical Treatment variant includes room for four crew, one litter patient and a patient treatment table.

## BENEFIT TO THE SOLDIER

AMPV provides significant capability improvement over the M113 FoV in force protection, survivability, mobility and power generation to incorporate the Army's inbound network and other future technologies.

## SPECIFICATIONS

- Weight: 75,000–80,000 pounds
- Sustained speed: 34–38 mph
- Acceleration (0–30 mph): 24 sec
- Cruising range (at 30 mph): 225 miles
- Crew Size: Two to four
- Weapons: Hosts M249, M240, M2 or MK-19; 120 mm mortar

## PROGRAM STATUS

- **3QFY16:** Critical Design Review
- **1QFY17:** First prototype delivery
- **3QFY17:** Production Prove Out and Live Fire Testing
- **3Q-4QFY18:** Limited User Test, Fort Hood, Texas
- **4QFY18:**
  - Army Requirements Oversight Council for Capabilities Production Document
  - Production Readiness Review

## PROJECTED ACTIVITIES

- **1QFY19:** Milestone C Decision
- **4QFY21:** First Unit Equipped

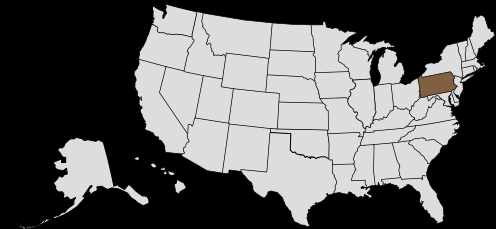
# AMPV

## FOREIGN MILITARY SALES

None

## CONTRACTORS

BAE Systems (York, PA)



# Army Integrated Air and Missile Defense (IAMD)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Army Integrated Air and Missile Defense (IAMD) integrates current and future Air and Missile Defense (AMD) sensors and weapons into a common integrated fire control capability with a distributed “plug-and-fight” network architecture. The IAMD Battle Command System (IBCS) is the fire control and operational center capability that provides greater defense effectiveness than what can be provided in the current single sensor fire unit construct. IBCS develops composite tracks from sensor measurement data provided by each sensor in the task force and develops weapon firing solutions based off of the composite track data. This method provides a more accurate target track, and more weapon battlespace than current systems can provide. The IBCS provides a common engagement operations center and data sharing capability for all echelons of Army AMD.

## BENEFIT TO THE SOLDIER

The IAMD architecture provides the framework to distribute fire control quality data, commands and messaging among components in time to provide a coordinated and integrated response to synchronized complex threat raids. The data construct is a self-healing system capable of automatic fail-over and rapid reconfiguration of components providing a more resilient defense with fewer single point failures. IBCS provides dynamic defense design capability to maintain optimal defense in accordance with supported force scheme of operations and maneuver. The architecture enables extended range and non-line-of-sight engagements across the full spectrum of AMD threats. It mitigates coverage gaps and single points of failure, and it reduces manpower, operation and support costs while providing enhanced training capability.

## SPECIFICATIONS

- Engagement Operations Center components provide a common Integrated Fire Control capability and include the Integrated Collaborative Environment and a trailer
- An Integrated Fire Control Relay for fire control connectivity and distributed operations includes a Fire Control Network Radio
- Plug-and-fight kits network enable multiple sensor and weapon to communicate with the IBCS Engagement Operations Center
- Common software fuses data, creates a Single Integrated Air Picture and will select the most appropriate weapon needed to effectively and efficiently defeat AMD threats

## PROGRAM STATUS

- **4QFY17:** Soldier Checkout Event (SCOE) 3.1
- **2QFY18:**
  - SCOE 3.1 back-brief to Army Acquisition Executive and Vice Chief of Staff of the U.S. Army
  - SCOE 4.0/ Development Test (DT) 4.0.2
- **4QFY18:** SCOE 4.0/DT4.0.2 Final Report/Senior Leader Briefing

## PROJECTED ACTIVITIES

- **3QFY19:** 4.5 DT
- **2QFY20:** 4.5 Limited User Testing
- **4QFY20:** Milestone C
- **1QFY22:** Independent Operational Test and Evaluation
- **3QFY22:** Initial Operating Capability

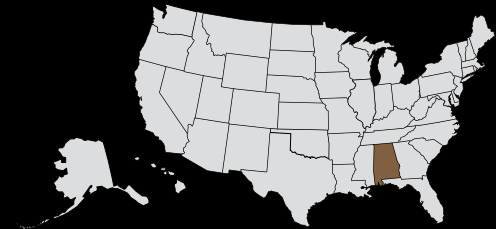
# IAMD

## FOREIGN MILITARY SALES

Poland

## CONTRACTORS

Northrop Grumman (Huntsville, AL)



# Assembled Chemical Weapons Alternatives (ACWA)

PEO Assembled Chemical Weapons Alternatives | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Assembled Chemical Weapons Alternatives (ACWA) enhances national security by destroying chemical weapons stockpiles in a safe and environmentally sound manner at the U.S. Army Pueblo Chemical Depot (PCD) in Pueblo, Colorado, and Blue Grass Army Depot (BGAD) in Richmond, Kentucky.

Established by Congressional legislation in 1996, Program Executive Officer, Assembled Chemical Weapons Alternatives (PEO ACWA) reports directly to the Under Secretary of Defense for Acquisition, Technology and Logistics through the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs. PEO ACWA is responsible for pilot testing selected alternative technologies and accelerating destruction of the chemical weapons stockpiles located at PCD and BGAD.

PEO ACWA is specifically responsible for managing the construction, systemization, operation and closure, and any contracting related to the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) and the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP). Bechtel Pueblo was selected as the systems contractor to design, construct, systemize, pilot test, operate and close the Pueblo Chemical Agent-Destruction Pilot Plant. Bechtel Parsons Blue Grass was selected as the systems contractor to design, construct, systemize, pilot test, operate and close the Blue Grass Chemical Agent-Destruction Pilot Plant. Construction of the PCAPP facility is 100 percent completed, and the BGCAPP facility is 98 percent completed. Systemization is in progress at both facilities.

## BENEFIT TO THE SOLDIER

ACWA eliminates stockpile storage costs (\$50-60 million per year) and will allow reallocation of the funding to support high-priority programs that will protect the warfighter.

## SPECIFICATIONS

### PCAPP:

- Will destroy Mustard Agent in 4.2-in mortars, and 105 mm and 155 mm projectiles
- Operational Concept: Neutralization followed by biotreatment

## PROGRAM STATUS

- **4QFY15:** BGCAPP Main Plant construction substantially complete
- **2QFY16:** PCAPP Explosive Destruction System successfully completes first campaign
- **4QFY16:** PCAPP Main Plant destruction operations began

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - BGCAPP Static Detonation Chamber operations begin
  - BGCAPP Main Plant operations
  - Per Congressional mandate both sites are to complete destruction no later than 31 December 2023



# ACWA

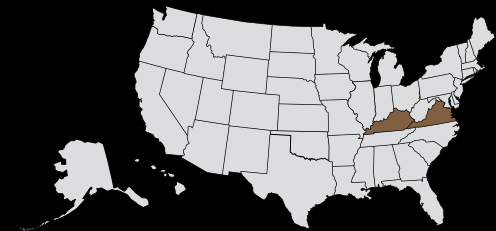
## FOREIGN MILITARY SALES

N/A

## CONTRACTORS

Bechtel (Reston, VA)

Bechtel Parsons Blue Grass (Richmond, KY)



# Black Hawk Utility Helicopter — UH/HH-60

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Black Hawk UH/HH-60 is the Army's utility tactical transport helicopter. It provides air assault, general support, aeromedical evacuation, command and control, and special operations support to combat, stability and support operations. This versatile Black Hawk helicopter has enhanced the Army's overall mobility due to dramatic improvement in troop and cargo lift capacity. It will serve as the Army's utility helicopter in the Future Force. There are multiple versions of the UH-60 Black Hawk, including the UH-60M and the UH-60V.

The UH-60M includes the improved GE-701D engine and provides greater cruising speed, rate of climb and internal load than the UH-60A and UH-60L versions. The Medical Evacuation (MEDEVAC) version of the UH-60M, the HH-60M, includes an integrated MEDEVAC Mission Equipment Package kit, providing day, night and adverse weather emergency evacuation of casualties.

The UH-60V is designed to update the existing UH-60L analog architecture to a digital infrastructure, enabling the upgraded aircraft to have a similar Pilot-Vehicle Interface and commonality of training as the UH-60M.

## BENEFIT TO THE SOLDIER

On the asymmetric battlefield, the Black Hawk enables commanders to get to the fight quicker and to mass effects throughout the battlespace across the full spectrum of conflict. A single Black Hawk can transport an entire 11-person, fully equipped infantry squad faster than a predecessor system in most weather conditions. The aircraft's critical components and systems are armored or redundant, and its airframe is designed to crush progressively on impact to protect crew and passengers. The UH-60M and the UH-60V are a digital

networked platform with greater range and lift to support maneuver commanders through air assault, command and control, general support and aeromedical evacuation.

## SPECIFICATIONS

- Max Gross Weight (pounds): 20,250 (A); 22,000 (L/V); 22,000 (M)
- Cruise Speed (knots): 149 (A); 150 (L/V); 152 (M)
- Rate Climb (feet/minute): 814 (A); 1,315 (L/V); 1,646 (M)
- Engines (Two each): GE-700 (A); GE-701C (L/V); GE-701D (M)
- External Load (pounds): 8,000 (A); 8,000 (L/V); 9,000 (M)
- Internal Load (pounds): 2,640 (A); 2,640 (L/V); 3,190 (M)
- Crew: Two pilots, two crew chiefs
- Armament: Two 7.62 mm machine guns

## PROGRAM STATUS

### UH-60V:

- **3QFY17:** First Flight
- **4QFY18:** Limited User Test

### UH/HH-60M:

- **Through FY18:** Fielded 960 UH-60M to Active Army, Reserve and the National Guard

## PROJECTED ACTIVITIES

### UH/HH-60M:

- **FY19-FY23:** Multiyear X Contract Award

### UH-60V:

- **1QFY19:** Milestone C
- **4QFY19:** Initial Operational Test & Evaluation
- **2QFY20:** Full Rate Production Decision
- **3QFY21:** First Unit Equipped



# Black Hawk

## FOREIGN MILITARY SALES

**UH-60L:** Brazil, Colombia, Egypt, Saudi Arabia and Thailand

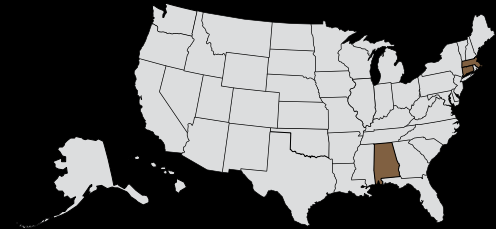
**UH-60M:** Bahrain, Jordan, Mexico, Saudi Arabia, Slovakia, Sweden, Taiwan, Thailand, Tunisia and United Arab Emirates

## CONTRACTORS

**UH/HH-60M:** Sikorsky (Stratford, CT)

**701-Series Engine:** General Electric (Lynn, MA)

**UH-60V:** U.S. Army Aviation and Missile Research, Development and Engineering Center Prototype Integration Facility, Redstone Defense Systems (Huntsville, AL)



# Bradley Fighting Vehicle Systems (BFVS) – M2/M3

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Bradley Fighting Vehicle Systems (BFVS) M2A3 Infantry Fighting Vehicle (IFV) features two second-generation, forward-looking infrared sensors, one in the Improved Bradley Acquisition Subsystem and another in the Commander's Independent Viewer. These provide "hunter-killer target hand off" capability with ballistic fire control. The Bradley A3 also has embedded diagnostics and an Integrated Combat Command and Control (IC3) digital communications suite hosting a Force XXI Battle Command Brigade-and-Below package with digital maps, messages and friend-or-foe information. These systems provide the vehicle with increased shared battlefield situational awareness. The Bradley's position navigation with Global Positioning Systems, inertial navigation and enhanced squad situational awareness includes a squad leader display integrated into vehicle digital images and IC3.

The Bradley Fire Support Team (BFIST) vehicle is the "Eyes of the Artillery." Using state-of-the-art long-range sensors, BFIST can acquire, identify, track and designate targets while mounted and under armor, enhancing crew survivability. BFIST is assigned to the Armored Reconnaissance Battalion and Combined Arms Battalions of the Armored Brigade Combat Team.

The M3A3 Cavalry Fighting Vehicle (CFV) is undergoing a conversion to the M2A3 IFV variant. This will reduce the sustainment footprint for the fleet and enhance Soldier proficiency and operational utility in the field.

## BENEFIT TO THE SOLDIER

The Bradley Fighting Vehicle ensures warfighters can continue to maintain combat overmatch battlefield capabilities to include reconnaissance, fire and maneuver, and "hunter-killer" engagement opportunities.

## SPECIFICATIONS

- Speed: 31 mph
- Range: 204 miles
- Payload: 6,000 pounds
- Vehicle weapons: 25 mm, Tube-Launched, Optically Tracked, Wireless-Guided Missiles II, 7.62 mm
- M2A3 mean miles between failure required/actual: 400/608 miles
- Deployable Aircraft: C-17, C-5

## PROGRAM STATUS

- **FY16-FY18:**
  - Track and Suspension Engineering Change Proposal (ECP) upgrade in Production
  - A4 ECP (Mobility) Upgrade Testing
- **4QFY16:** Bradley M2 as baselined configuration for both IFV/CFV roles
- **4QFY17:** A4 ECP (Mobility) Production Decision received
- **2QFY18:**
  - Completion of M3 to M2 conversion
  - Fielding 15th ABCT begins
  - Underbelly Interim Solution Development begins

## PROJECTED ACTIVITIES

- **1QFY19:** A4 ECP (Mobility) upgrade Production and Fielding begins
- **3QFY19:** Fielding of 16th ABCT begins
- **4QFY20:** Fielding of Active Protection Systems Brigade Set
- **Through FY22:** Track and Suspension ECP upgrade continues

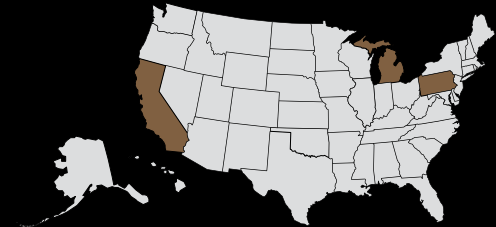
# Bradley

## FOREIGN MILITARY SALES

Lebanon and Saudi Arabia

## CONTRACTORS

BAE Systems (York, PA; Santa Clara, CA; Sterling Heights, MI)



# Chinook — CH-47F

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The CH-47F Chinook is the Army's only heavy-lift cargo helicopter supporting combat and other critical operations. The CH-47F has a suite of improved features such as an upgraded digital cockpit featuring the Common Avionics Architecture System, a new monolithic airframe with vibration reduction, and the Digital Automatic Flight Control System, which provides coupled controllability for operations in adverse environments (i.e. reduced visibility, brown out and high winds). The CH-47F's common cockpit enables multiservice digital compatibility and interoperability for improved situational awareness, mission performance and survivability, as well as future growth potential. The CH-47F Block II provides an increased payload and operational reach beyond the existing CH-47F capability. The Block II will also enable the Army to better support the rapid response capability necessary for forcible and early entry contingency missions as well as tactical and operational nonlinear, noncontiguous, simulations or sequential operations.

## BENEFIT TO THE SOLDIER

The CH-47F tactically transports forces and associated equipment and provides routine aerial sustainment of maneuver forces. Secondary missions the Chinook executes to support Soldiers and commanders include: medical evacuation, search and rescue, parachute drops, disaster relief and aircraft recovery. The CH-47F Block II program provides additional capability to the field with greater reach, increased payload capacity and an increase in maximum gross weight to 54,000 pounds.

## SPECIFICATIONS

- Empty aircraft weight: 24,578 pounds (Block I); 26,800 pounds (Block II) (estimated)

- Maximum gross weight: 50,000 pounds (Block I); 54,000 (Block II)
- Total lift capability at hover in 4,000-foot pressure altitude and 95 degrees Fahrenheit: 46,280 (Block I); 47,928 (Block II)
- Maximum cruise speed: 160 knots (Block I & Block II)
- Capacity: 36 (Block I & Block II)
- Litter capacity: 24 (Block I & Block II)
- Sling-load capacity: 26,000 pounds center hook; 17,000 pounds forward/aft hook; 25,000 pounds tandem (Block I & Block II)
- Minimum crew: 3 (pilot, copilot and flight engineer) (Block I & Block II)

## PROGRAM STATUS

- **1QFY17:** Improved Vibration Control System delivered on production aircraft
- **3QFY17:** Milestone B and entry into Engineering and Manufacturing Development (EMD) Phase, CH-47F Block II
- **4QFY17:**
  - Delivery of 400th Chinook
  - EMD Contract Award
- **3QFY18:** First CH-47F Block II prototype aircraft begins Production
- **4QFY18:** Final Block I Production Contract Award

## PROJECTED ACTIVITIES

- **2QFY20:** Begin Fielding of Common Avionics Architecture System (9.4) and Digital Automatic Flight Control System (3.3) updates
- **1QFY21:** Limited User Test, CH-47F Block II
- **4QFY21:**
  - Milestone C, CH-47F Block II
  - Low Rate Initial Production, CH-47F Block II

# Chinook

## FOREIGN MILITARY SALES

Australia, Netherlands, Saudi Arabia, Turkey and United Arab Emirates

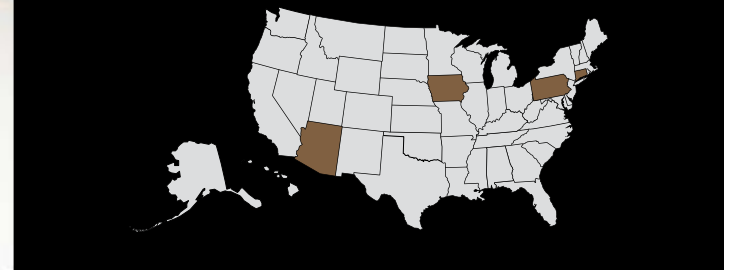
## CONTRACTORS

**Aircraft and Advanced Chinook Rotor Blades:** Boeing (Philadelphia, PA)

**Engine:** Honeywell (Phoenix, AZ)

**Software:** Rockwell Collins (Cedar Rapids, IA)

**Engine Controls:** Goodrich (Danbury, CT)



# Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Common Missile Warning System (CMWS) and Advanced Threat Infrared Countermeasures (ATIRCM) system integrates defensive infrared (IR) countermeasures capabilities into existing, current-generation aircraft to engage and defeat IR-guided missile threats.

The Army operational requirements concept for IR countermeasures systems is the Suite of Integrated Infrared Countermeasures (SIIRCM). The CMWS and ATIRCM programs form the core element of SIIRCM. CMWS can function as a stand-alone system with the capability to detect missiles and provide audible and visual warnings to pilots. When installed with the Advanced IIRCM Munitions and improved countermeasure dispensers, it activates expendables to decoy and defeat IR-guided missiles.

ATIRCM protects crews and aircraft from advanced threat Man Portable Air Defense Systems (MANPADS) until Common Infrared Countermeasure (CIRCM) is fielded.

The CIRCM program of record is completing the Engineering and Manufacturing Development Phase and is being developed to replace ATIRCM. CIRCM will be lighter weight, more reliable and have more affordable life cycle costs. It is also designed to operate with CMWS and future missile warning systems to provide protection for rotary-wing, tiltrotor and small fixed-wing aircraft across the Department of Defense (DOD).

## BENEFIT TO THE SOLDIER

MANPADS are proliferated worldwide and pose a strategic threat to all DOD rotary-wing and fixed-wing aircraft. Threat detection sensors are the first step in the detection-and-defeat engagement sequence. Improving sensor capability and exploiting new sensor technology translates into seeing

the threat sooner and at greater distances, buying more time for the warfighter to successfully engage with an effective countermeasure solution. The combination of CIRCM and flares helps provide a tiered defense for DOD aircraft.

## SPECIFICATIONS

### Threat detection systems:

- CMWS (ACAT I) detects threats in the ultraviolet spectrum, warns pilots and deploys flares to counter threat
- Laser Detection System (ACAT IV) detects laser-guided threats and warns pilots
- Radar Warning Receiver (ACAT III) detects Radio Frequency (RF) – emitting and RF-guided threats, and warns pilots

### Threat defeat systems:

- CIRCM (ACAT I) system, the next generation lightweight laser-based system, defeats IR-guided MANPAD threats
- ATIRCM (ACAT I), the legacy laser-based IR countermeasure system, is fielded only to the CH-47F fleet due to its size, weight and power requirements

## PROGRAM STATUS

- **1QFY18:**
  - CIRCM delegated ACAT I
  - Modernized Radar Warning Receiver Capability Production Document approved
- **3QFY18:** CIRCM Capability Production Document – Army Requirement Oversight Council approved
- **4QFY18:** CIRCM Milestone C and Low Rate Initial Production 1 Decision

## PROJECTED ACTIVITIES

- **1QFY19:** Advanced Threat Detection System Materiel Development Decision
- **4QFY20:** CIRCM Full Rate Production Decision

# CMWS, ATDS, LDS, MRWR, ATIRCM, CIRC

## FOREIGN MILITARY SALES

**CMWS:** Egypt, Jordan, Korea, Netherlands, Qatar, Saudi Arabia, Spain, Tunisia, Turkey and United Kingdom

**LDS:** Egypt, Indonesia, Jordan, Korea, Netherlands, Qatar, Saudi Arabia, Sweden, Taiwan, Tunisia and United Arab Emirates

## CONTRACTORS

**ATIRCM and CMWS:** BAE Systems (Nashua, NH)

**CIRC and MRWR:** Northrop Grumman (Rolling Meadows, IL)

**LDS:** United Technologies Aerospace Systems (Danbury, CT)

**Logistics Support:** LogiCore (Huntsville, AL)

**Programmatic Support:** Quantitech, Inc. (Huntsville, AL)

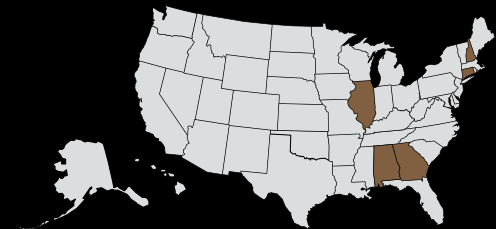
**System Engineering Support:** SAIC (Huntsville, AL)

**Software Configuration Management Support:** SAIC (Huntsville, AL)

**Test Support Data Analysis:** SAIC (Huntsville, AL)

**Engineering/Tech Production Support:** SAIC (Huntsville, AL)

**Data Analysis and System Integration Laboratory Development:** Georgia Tech Applied Research Corporation (Atlanta, GA)



# Common Remotely Operated Weapon Station (CROWS)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

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. CROWS also features programmable target reference points for multiple locations, programmable sector surveillance scanning, automatic target ballistic lead, automatic target tracking, and programmable no-fire zones.

Future enhancements include integration of other weapons, escalation-of-force systems, sniper detection, integrated 360-degree situational awareness, increased weapon elevation and commander's display.

## BENEFIT TO THE SOLDIER

CROWS allows the warfighter to remotely engage targets with precision fire while on the move or stationary to the maximum effective range of the weapon. Capable of target engagement under day and night conditions, the CROWS sensor suite includes a daytime video camera, thermal camera and laser rangefinder. CROWS is designed to mount on any tactical vehicle and supports the MK19 Grenade Machine Gun, M2 .50 Caliber Machine Gun, M240B Machine Gun and M249 Squad Automatic Weapon.

## SPECIFICATIONS

- Interoperable with the MK19, M2, M240B, M249 and Javelin systems
- Camera; 27x zoom, 47-degree field of view (FOV) (day)
- Thermal; 2x zoom, 3 degrees and 11 degrees dual FOV (night)

## PROGRAM STATUS

- **1QFY16:** CROWS Increment 2 Capability Development Document approved
- **3QFY16:** Low Profile CROWS Production Decision
- **4QFY17:** Transition to Organic Depot support
- **4QFY18:** CROWS-Javelin fielding to support 2nd Calvary Regiment Stryker enhanced lethality Operational Needs Statement

## PROJECTED ACTIVITIES

- **3QFY19:** Stryker Technology Refresh/Enhancement CROWS Developmental Test
- **2QFY20:** CROWS Technology Refresh/Enhancement Engineering Change Proposal (ECP) approval
- **4QFY20:** Stryker ECP CROWS M153A4 Fielding



# CROWS

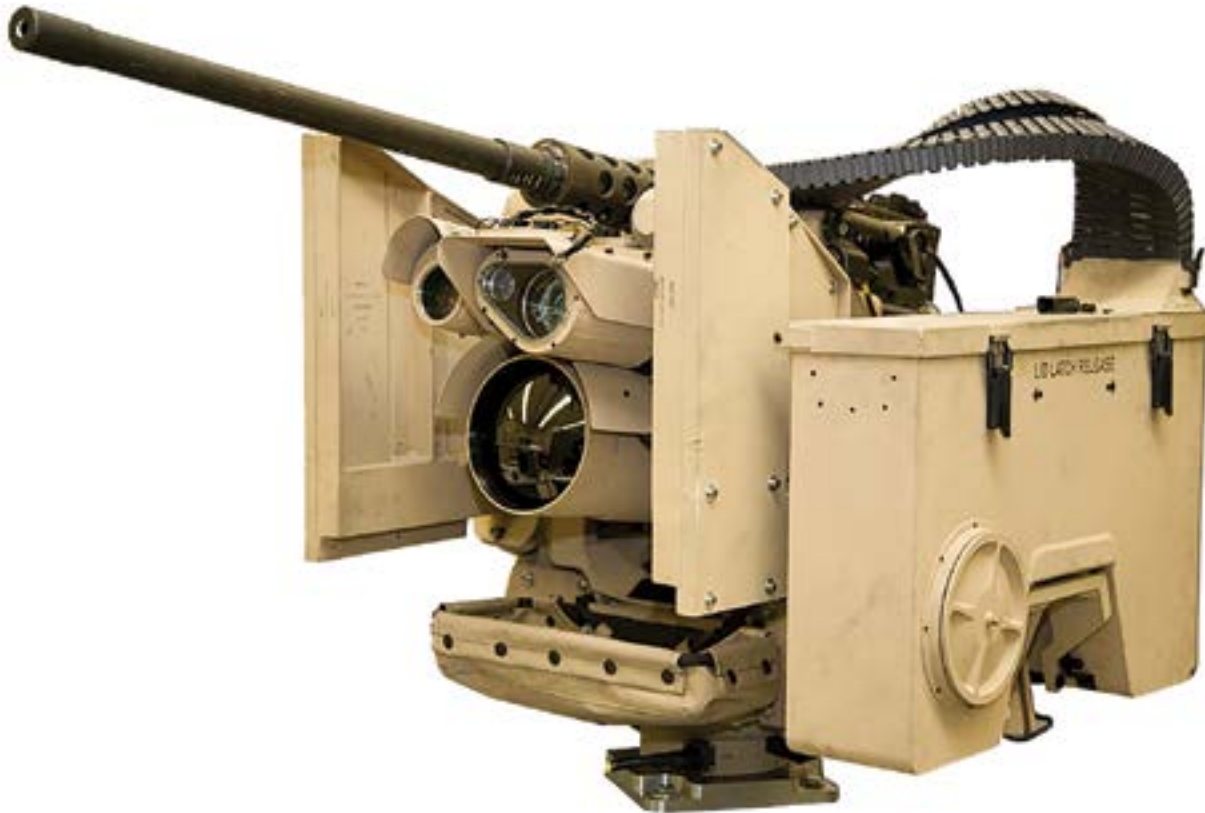
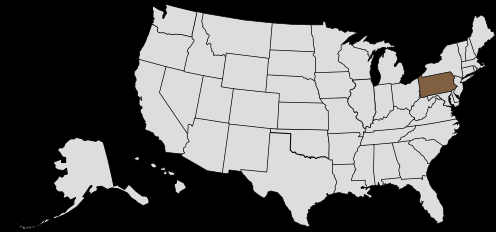
## FOREIGN MILITARY SALES

M153: United Arab Emirates

M153A2E1 (Low Profile): Kuwait

## CONTRACTORS

Kongsberg Defense & Aerospace (Johnstown, PA)



# Counterfire Target Acquisition Radar — AN/TPQ-53

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The AN/TPQ-53 provides the next generation answer to the aging legacy Firefinder Radars (AN/TPQ-36 and AN/TPQ-37) by providing improved acquisition and identification of mortar, artillery and rocket munitions in the 90 degree mode and introducing the capability to operate in the 360 degree mode at greater ranges than the AN/TPQ-50 system.

## BENEFIT TO THE SOLDIER

Compared to current AN/TPQ-36 and AN/TPQ-37 Firefinder Radar systems, AN/TPQ-53 offers enhanced performance, including greater mobility, increased reliability and supportability, lower life cycle cost, reduced crew size and the ability to track targets in a full-spectrum environment — a vital capability on today's battlefield.

## SPECIFICATIONS

- 90 degree mode of operation: Mortar: .5-20 km; Artillery: 3-34 km; Rocket: 5-60 km
- 360 degree mode of operation: Mortar: 3-15 km; Artillery: 5-20 km; Rocket 5-20 km
- Probability of location greater than or equal to 85 percent in clutter-free and clutter environments
- Crew size: Five Soldiers; Military occupational specialty: 13R
- Emplacement: 10 minutes; Displacement: 5 minutes
- Air, rail or ship transportable
- Max speed: ~100 kph
- Max cruising range: ~ 480 km
- Rapidly deployable to, and integrated into, the tactical battlefield with heavy, medium and light forces
- Mobile, maneuverable, fully supportable and easily maintained

## PROGRAM STATUS

- **1QFY16:** Entrance into Full Rate Production (FRP)
- **3QFY16:**
  - Conditional Materiel Release approved
  - First Unit Equipped
- **2QFY17:** FRP Contract Award; \$1.6 billion
- **2QFY18:** ACAT IC designation

## PROJECTED ACTIVITIES

- **1QFY20:** Organic Depot capability established; Tobyhanna Army Depot, Pennsylvania
- **4QFY21:** Production ends
- **1QFY22:** Transition to Sustainment; U.S. Army Communications-Electronics Command, Maryland

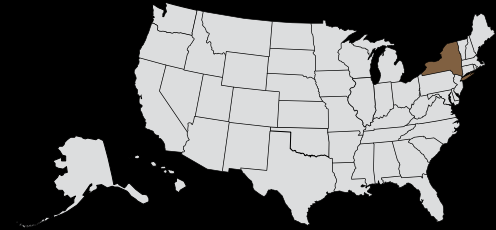
# AN/TPQ-53

## FOREIGN MILITARY SALES

Singapore

## CONTRACTORS

Lockheed Martin Rotary and Mission Systems  
(Syracuse, NY)



# Distributed Common Ground System-Army (DCGS-A)

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Distributed Common Ground System-Army (DCGS-A) is a system-of-systems that supports the intelligence warfighting function to assist the commander's visualization and understanding of the threat and other relevant aspects of the operational environment. DCGS-A assists in the application of the intelligence core competencies (intelligence synchronization, intelligence operations and intelligence analysis) through the ability to apply the intelligence process and to leverage the intelligence enterprise. DCGS-A is the Army's cornerstone intelligence system for sensor tasking, Processing, Exploitation and Dissemination (PED) at all echelons, and provides unprecedented, timely, relevant and accurate data to Soldiers from Non-Secure Internet Protocol Router up to the Top Secret/Sensitive Compartmented Information level. It gives commanders the ability to task battlespace sensors and receive intelligence information from multiple sources on the battlefield.

DCGS-A consists of both software and hardware. Hardware includes user laptops and desktops, fixed, portable and vehicle-mounted servers, and ground stations to receive, share and store collected intelligence. Software tools allow users to select and pull from DCGS-A's 700-plus data sources, perform analysis and share intelligence products generated from that analysis.

The Army produces and fields DCGS-A capability on various hardware platforms using consolidated software releases. DCGS-A's modular, open systems architecture allows rapid adaptation to changing mission circumstances. As an analyst toolset, the system enables the user to collaborate, synchronize and integrate organic and nonorganic collection elements with operations. As the intelligence component supporting the

operation, DCGS-A can discover and use all relevant threat, noncombatant, weather, geospatial and space data, and evaluate technical data and information.

Future technology upgrades of DCGS-A will be accomplished through a series of Capability Drops (CD), in which requirements are broken into smaller bundles, allowing for faster, more agile acquisition and fielding by leveraging existing commercial capabilities. CD 1 addresses requirements at the battalion echelon, and CD 2 will address the Strategic Data Platform.

## BENEFIT TO THE SOLDIER

DCGS-A connects Soldiers to the Intelligence Community, other Services, multiple joint intelligence, surveillance and reconnaissance (ISR) platforms and sensors and Army Mission Command systems. It gives commanders the ability to view ISR information in one place. It also integrates that information into tools that can support intelligence development.

## PROGRAM STATUS

- **1QFY16:** DCGS-A Increment 1, Release 2 Fielding decision
- **2QFY16:** Increment 1, Release 2 First Unit Equipped (FUE)
- **1QFY18:** Increment 1, Release 2, Service Pack 1 (SP1) FUE

## PROJECTED ACTIVITIES

- **1QFY19:** SP1 transitions to Software Engineering Center
- **4QFY19:** Full Deployment
- **1QFY19:** DCGS-A CD 1 – Battalion Solution, Operational Assessment
- **2QFY19:** DCGS-A CD 2 – Strategic Data Platform, Contract Award

## SPECIFICATIONS

- Intelligence Fusion Server (IFS): Primary interface between echelon DCGS-A subsystems, external IFS and the other Army Mission Command systems
- Portable Multifunctional Workstation: Used to plan, manage and synchronize ISR assets, maintain situational awareness, populate the enemy portion of the common operational picture, generate threat reports, develop and nominate targets, develop trends and produce tailored geospatial and weather products
- Fixed Multifunctional Workstation: Provides reach-back capabilities to the warfighter and is a multi-intelligence platform that provides fully integrated and timely intelligence to the battlefield
- Cross Domain Server Set: Allows the transfer of data, combat information and intelligence at appropriate security levels between analysts
- Tactical Intelligence Ground Station (TGS): Tactical geo-intelligence PED and targeting node. TGS retains Common Ground Station capability and functionality; upgrades the hardware; adds more moving target identification (MTI), full motion video and imagery exploitation capability; and provides totally integrated stand-alone imagery, MTI and video sensor processing
- Geospatial Intelligence Work Station: Provides geospatial and imagery analysts within tactical and operational Army units the ability to process, view, exploit, transmit and store geospatial and imagery information via Army area communications from brigade to echelons above corps
- Operational Intelligence Ground Station: Consolidates the capabilities of the AN/TYQ-224A, GUARDRAIL Ground Baseline and the Tactical Exploitation System Forward
- Intelligence Processing Center: V1 provides a suite of core PED applications for intelligence analysis and storage. V2 is the basic combat training and division commander's primary ISR networking; analysis, production system for tasking of sensors PED support



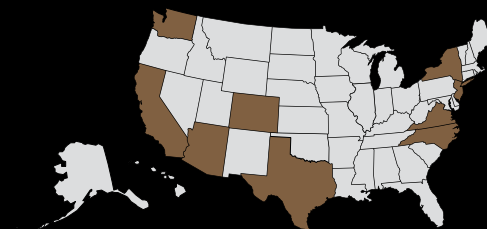
## DCGS-A

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Lockheed Martin (Denver, CO)  
General Dynamics (Scottsdale, AZ)  
ViaTech Systems, Inc. (Eatontown, NJ)  
Palantir (Palo Alto, CA)  
MITRE (Eatontown, NJ)  
Booz Allen Hamilton (Eatontown, NJ)  
Raytheon (Garland, TX; Arlington, VA)  
BAE Systems (Arlington, VA)  
NetApp (Sunnyvale, CA)  
VMware (Palo Alto, CA)  
Esri (Redlands, CA)  
Tucson Embedded Systems (Tucson, AZ)  
L3 Communication Systems (Tempe, AZ)  
Dell (Austin, TX)  
Potomac Fusion (Austin, TX)  
Redhat (Raleigh, NC)  
IBM (Armonk, NY)  
HP (Palo Alto, CA)  
Leidos (Reston, VA)  
ManTech (Fairfax, VA)  
Oracle (Redwood Shores, CA)  
Microsoft (Redmond, WA)



# Excalibur Precision 155 mm Projectiles

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

### Production & Deployment

Operations & Support

## DESCRIPTION

The Excalibur (XM982, M982 and M982A1) is a 155 mm, Global Positioning System (GPS)-guided, extended range artillery projectile in use as the Army's next-generation cannon artillery precision munition. It provides improved fire support to the maneuver force commander, increases lethality and reduces collateral damage. The target, platform location and GPS-specific data are entered into the projectile's mission computer through an Enhanced Portable Inductive Artillery Fuze Setter. The Excalibur projectile uses a jam-resistant internal GPS receiver to update the inertial navigation system, providing precision in-flight guidance and dramatically improving accuracy to less than two meters miss distance regardless of range. The Excalibur projectile has three fuze options (point-detonation, point-detonation delay and height-of-burst) and is employable in all weather conditions and terrains. The Excalibur's capabilities allow for first-round effects-on-target while simultaneously minimizing collateral damage and the number of rounds required to engage targets.

The Excalibur program is using an incremental approach to provide a combat capability to the Soldier as quickly as possible and to deliver advanced capability while reducing unit cost and increasing reliability. The initial variant (XM982 Increment 1A-1) includes a unitary high-explosive warhead capable of penetrating urban structures and is also effective against personnel and light matériel targets. The Excalibur program benefits from contributed resources toward development in accordance with established international cooperative development and production agreements.

## BENEFIT TO THE SOLDIER

The Excalibur projectile enables the Soldier to service a precisely located target with first-round effects, denying the enemy the ability to take protective measures or flee the area. Excalibur's

achieved and relatively limited damage radius allows for target engagement within close proximity.

## SPECIFICATIONS

- Maximum range from U.S. 39 caliber howitzers with Zone 5 Modular Artillery Charge System (MACS): 39.3 km
- Minimum range from U.S. 39 caliber howitzers with Zone 3 MACS: 8.7 km
- Precision achieved: less than 2 meters miss distance
- Fuze modes: point-detonation, point-detonation-delay and height-of-burst

## PROGRAM STATUS

- **FY16-FY18:**
  - M982A1 Increment 1B reached Full Rate Production (FRP); 5,312 projectiles awarded on contract
  - Hardware and software updates initiated to improve GPS-jamming resistance
  - Software update initiated to allow user-defined projectile trajectories for target engagement

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - M982A1 (Increment 1B) FRP continues; FY19 President's Budget procures 4,633 projectiles
  - Maintaining a sufficient inventory is an integral part of ensuring a highly lethal Army force
  - Excalibur projectiles provide Artillery units with the capability needed to continuously dominate the battlefield at extended ranges
  - An enhanced projectile is a candidate for demonstrating Excalibur's potential capability to meet Army requirements, addressing poorly located and moving hard targets in GPS-degraded and -denied environments

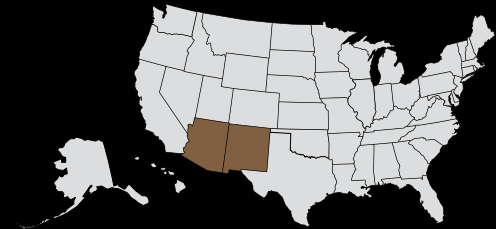
# Excalibur

## FOREIGN MILITARY SALES

Four countries – names for official use only and not for public disclosure

## CONTRACTORS

Raytheon Missile Systems (Tucson, AZ, with work also performed in Farmington, NM, and United Kingdom)



# Family of Medium Tactical Vehicles (FMTV)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Family of Medium Tactical Vehicles (FMTV) is a system of strategically deployable vehicles that performs general resupply, ammunition resupply, maintenance and recovery, and engineer support missions. It serves as weapon systems platforms for combat, combat support and combat service support units in a tactical environment.

The Light Medium Tactical Vehicle (LMTV) has a 2.5-ton capacity (cargo, van and chassis models) and a companion trailer. The Medium Tactical Vehicle (MTV) has a 5-ton capacity (cargo; long wheelbase cargo with and without materiel handling equipment; tractor; van; wrecker; 8.8-ton Load Handling System (LHS); 8.8-ton LHS trailer and 10-ton dump truck models). Three truck variants and two companion trailers, with the same payload capacity as their prime movers, provide airdrop capability. MTV also serves as the platform for the High Mobility Artillery Rocket System (HIMARS) and resupply vehicle for PATRIOT and HIMARS. FMTV operates worldwide in all weather and terrain conditions.

FMTV incorporates a vehicle data bus and Class V interactive electronic technical manual, significantly lowering operating and support costs. Units are equipped with FMTV at more than 68 locations worldwide. The Army continues to purchase the current FMTV A1P2 configuration, in particular to support European Deterrence Initiative requirements, with production and deployment continuing into 2021. In February 2018, the Army pursued a competitive award for Engineering Change Proposals to the Army-owned technical data package for new production of the FMTV A2. Recent efforts to integrate critical (but heavy) protection solutions and satisfy the growing power demands of modern military command, control, communications, computers, intelligence, surveillance and reconnaissance systems contributed to a loss of overall vehicle

performance. The FMTV A2 modernization effort re-balances the payload, performance and protection triangle for today while providing additional capacity for integration of new technologies tomorrow.

## BENEFIT TO THE SOLDIER

FMTV enhances crew survivability and tactical mobility while being strategically deployable in C-5, C-17 and C-130 aircraft. It reduces the Army's logistical footprint and provides a high-operational readiness rate for the warfighter.

## SPECIFICATIONS

	LMTV A1 Cargo	MTV A1 Cargo
<b>Payload (Pounds)</b>	5,000	10,000
<b>Towed Load (Pounds)</b>	12,000	21,000
<b>Engine</b>	Caterpillar, 6-cylinder diesel, 275 horsepower	Caterpillar, 6-cylinder diesel, 330 horsepower
<b>Transmission</b>	Automatic Allison Transmission	Automatic Allison Transmission
<b>Drive</b>	4x4	4x4

## PROGRAM STATUS

- **FY95-FY17:** Production and Deployment

## PROJECTED ACTIVITIES

- **FY18-FY21:** FMTV A1P2 Production and Deployment
- **FY22:** FMTV A2 Production and Deployment



# FMTV

## FOREIGN MILITARY SALES

Afghanistan, Canada, Djibouti, Greece, Iraq, Jordan, Macedonia, Saudi Arabia, Taiwan, Thailand and United Arab Emirates

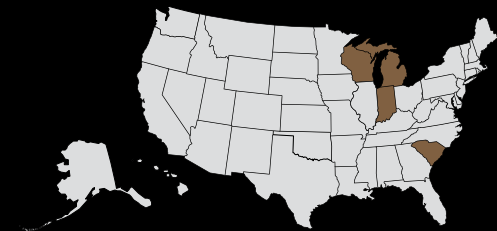
## CONTRACTORS

**Prime:** Oshkosh (Oshkosh, WI)

**Axles:** Meritor (Troy, MI)

**Transmission:** Allison Transmission (Indianapolis, IN)

**Engine:** Caterpillar, Inc. (Greenville, SC)



# Future Vertical Lift (FVL) Family of Systems

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Future Vertical Lift (FVL) is a family of vertical lift solutions that will deliver next generation capabilities at the tactical, operational and strategic levels. They will enable joint force mission effectiveness in the transregional multidomain and multifunctional threat environment. The FVL Family of Systems seeks to improve vertical lift dominance by improving performance and optimizing affordability, lifecycle management, interoperability and supportability. The U.S. Army is the lead service for the development of Future Long Range Advanced Aircraft, a medium size Assault/Utility aircraft, and the first of five Capability Sets that will provide improved speed, range, agility, endurance and sustainability over current rotorcraft.

## BENEFIT TO THE SOLDIER

FVL will provide capabilities that will enable the Soldier to dominate the battlefield in 2030 and beyond.

## SPECIFICATIONS

- Under Development

## PROGRAM STATUS

- **FY16-FY18:** Pre-decisional

## PROJECTED ACTIVITIES

- **FY19-FY23:** Pre-decisional

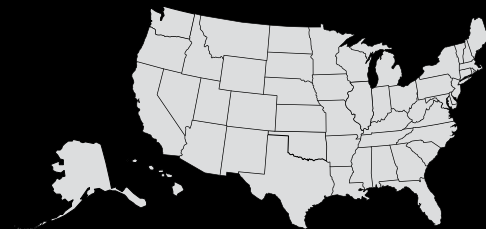
# FVL

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Pre-decisional, pre-contract award



# PROGRAM UNDER DEVELOPMENT

# General Fund Enterprise Business Systems (GFEBs)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

General Fund Enterprise Business Systems (GFEBs), the Army's new web-enabled financial, asset and accounting management system, was the first Enterprise Resource Planning (ERP) structure to fully deploy within the Department of the Army. The system standardizes, streamlines and shares critical data across the Active Army, the Army National Guard and the Army Reserve. This Commercial Off-The-Shelf ERP solution develops, acquires, integrates, deploys and sustains enterprisewide financial and procurement management capabilities to support the Army's current and future missions.

Moving forward, GFEBs plans on negotiating roles and responsibilities with the Assistant Secretary of the Army for Financial Management and Comptroller by identifying subject matter experts on business-process-related issues; working with users to address issues; analyzing business processes, system or training problems; and proposing changes to Tier II Support. GFEBs will also review cost estimates to rightsize sustainment and will support the maturation of the Functional Governance Board process.

## BENEFIT TO THE SOLDIER

GFEBs provides financial, asset and accounting management across the Army.

## SPECIFICATIONS

- Improve the Army's business processes, allow for full-cost reporting of the Army's outputs (products and services) and provide an auditable trail
- Accommodate emerging requirements for enhanced financial integration, Army single-labor time tracking and environmental and integrated resource management

- Provide additional capability and improve automated integration of financial data, enhance business process efficiencies, increase interoperability and maintain auditability through these emerging requirements

## PROGRAM STATUS

- **3QFY17:** Completed Technology Refresh (included application, network, infrastructure and database upgrades)
- **2QFY18:** Added the Defense Health Agency and Uniformed Services University of Health Sciences as GFEBs users
- **3QFY18:** Awarded follow-on Sustainment contract (transition completed June 2018)

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Sustain current operations by maintaining system availability and operational readiness, ensuring a security posture and Risk Management Framework processes
  - Execute and complete data center hosting migration to the Defense Information Systems Agency
  - Continue GFEBs financial management modernization efforts as a core component of the Army business environment's foundation and serve as an enabler of all Army modernization efforts to deliver
    - Fully functioning financial management capability that is tantamount to the success of managing Army resources
    - Auditable business environment that builds confidence in the Army's financial management capabilities
    - Financial analytics capability that is a key component of senior leader decision-making cycles
    - Less complex systems environment

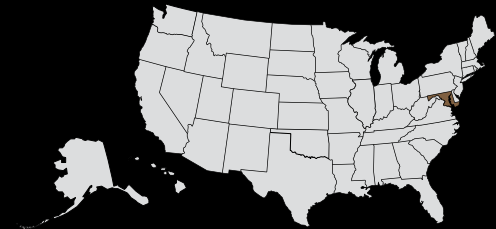
# GFEBs

## FOREIGN MILITARY SALES

None

## CONTRACTORS

IBM (Bethesda, MD)



# Global Combat Support System-Army (GCSS-Army)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Global Combat Support System-Army (GCSS-Army) is one program with two components. The first component, GCSS-Army Enterprise Resource Planning (ERP) Solution, is an automated information system that serves as the primary tactical logistics enabler supporting Army and joint transformation for sustainment. The program re-engineers current business processes to achieve end-to-end logistics and integration with applicable command and control (C2) and joint systems.

The second component, Army Enterprise Systems Integration Program (AESIP), integrates Army business functions by providing a single source for enterprise hub services, master data and business intelligence. GCSS-Army uses Commercial Off-The-Shelf ERP software products to support rapid force projection in the battlefield functional areas of arming, fixing, fueling, sustaining and tactical logistics financial processes.

## BENEFIT TO THE SOLDIER

GCSS-Army will meet the Soldier's need for responsive support at the right place and time and improve the commander's situational awareness with accurate and responsive information.

## SPECIFICATIONS

- Replaces five logistics Standard Army Management Information Systems in tactical units and will establish an interface/integration with applicable C2 and joint systems
- Serves as the primary enabler to satisfy the Army's vision of a technologically advanced ERP that manages the flow of logistics, resources and information to meet the Army's modernization requirements
- AESIP integrates Army business functions by providing a single source for enterprise hub services, business intelligence and analytics, and centralized master data management across the business domain

## PROGRAM STATUS

- **1QFY16:** Increment 1, Wave 1 Fielding completed for 281 warehouse and supply support activities worldwide
- **1QFY17:** Transition Authority to Proceed for Increment 2
- **1QFY18:** Increment 1, Wave 2 Fielding completed for 2,900 Property Books, 12,500 Unit Supply Rooms and 10,000 maintenance activities worldwide (Increment 1 fully deployed)
- **FY16-FY18:** Total number of users trained during Wave 1 and Wave 2 is more than 140,000
- **2QFY18:** Increment 1 transitioned into Sustainment; GCSS-Army Increment 2: Incremental Development Decision

## PROJECTED ACTIVITIES

- **1QFY19-2QFY20:** Transition Sustainment of GCSS-Army baseline from the contractor lead system integrator to the government
- **FY19-FY22:** Incorporate Enterprise Aviation, enhanced Business Intelligence/Business Warehouse, and Army Prepositioned Stock capabilities into baseline (Increment 2)

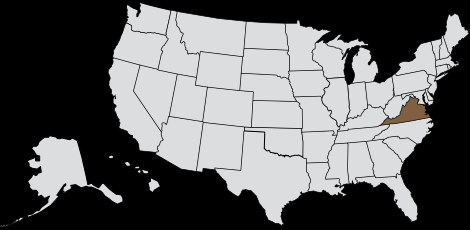
# GCSS-Army

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Northrop Grumman (Bon Air, VA)



# Gray Eagle Unmanned Aircraft System (UAS) – MQ-1C

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The MQ-1C Gray Eagle Unmanned Aircraft System (UAS) addresses the need for a long-endurance, armed, unmanned aircraft system that offers greater range, altitude and payload flexibility over earlier systems.

The Gray Eagle UAS is powered by a heavy fuel engine for higher performance, better fuel efficiency, common fuel on the battlefield and a longer lifetime.

The system is fielded in platoon sets consisting of four unmanned aircraft, two Universal Ground Control Stations, seven Ground Data Terminals, one Mobile Ground Control Station, one Satellite Ground Data Terminal, an automated takeoff and landing system, Light Medium Tactical Vehicles (LMTVs) and other ground-support equipment operated and maintained by a company of 128 Soldiers within the Combat Aviation Brigade. U.S. Army Special Operations Forces and Intelligence and Security Command have two Gray Eagle Extended Range (ER) systems which include 12 unmanned aircraft, six Universal Ground Control Stations, nine Ground Data Terminals, three Mobile Ground Control Stations, one Satellite Ground Data Terminal, an automated takeoff and landing system, LMTVs, and other ground-support equipment operated and maintained by a company of 165 Soldiers.

## BENEFIT TO THE SOLDIER

The MQ-1C provides the warfighter with dedicated, assured, multimission UAS capabilities across all 10 Army divisions to support commanders' combat operations and Army Special Forces and Intelligence and Security Command.

## SPECIFICATIONS

- Length: 28 feet
- Wingspan: 56 feet
- Gross takeoff weight: 3,600 pounds (ER: 4,200 pounds)
- Maximum speed: 150 knots
- Ceiling: 25,000 feet
- Range: 2,500 nautical miles via satellite communications
- Endurance: 27-plus hours (ER: 40-plus hours)
- Payloads: Up to four HELLFIRE missiles

## PROGRAM STATUS

- **FY16-FY18:** Full Rate Production

## PROJECTED ACTIVITIES

- **FY18-FY19:** Complete Operational Testing and begin Fielding of ER Gray Eagle variant



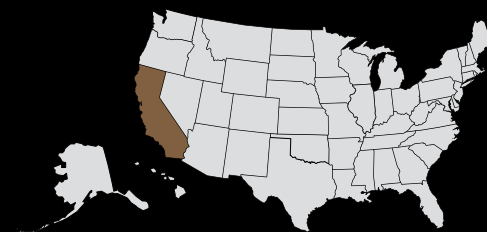
# Gray Eagle — MQ-1C

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Atomics Aeronautical (San Diego, CA)



# Guided Multiple Launch Rocket System (GMLRS) Dual-Purpose Improved Conventional Munition (DPICM)/Unitary/Alternative Warhead

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Guided Multiple Launch Rocket System (GMLRS) is a surface-to-surface system used to attack, neutralize, suppress and destroy targets using indirect precision fires up to 70-plus km. GMLRS munitions have greater accuracy than ballistic rockets with a higher probability of kill and a reduced logistics footprint. The current GMLRS family of munitions consists of three fielded variants: Dual-Purpose Improved Conventional Munition (DPICM) and the Alternative Warhead (AW) variants to service area targets; and the Unitary variant with a single 200-pound-class high-explosive charge to service point targets with low collateral damage. GMLRS is employed with the M270A1 Multiple Launch Rocket System and M142 High Mobility Artillery Rocket System launchers.

GMLRS rockets were utilized extensively in Operation Iraqi Freedom/Operation Enduring Freedom and continue to provide field artillery support in Overseas Contingency Operations. Development efforts include modifying GMLRS to extend the maximum range and incorporating a side-mounted proximity sensor to improve area effects.

## BENEFIT TO THE SOLDIER

GMLRS provides the warfighter the ability to engage both point and area targets with precision fires.

## SPECIFICATIONS

- Length: 3,937 mm
- Diameter: 227 mm
- Reliability: 92 percent (threshold) and 95 percent (objective)
- Range: 15 to 70-plus km
- Each launch pod/container holds six rockets

## PROGRAM STATUS

- **4QFY16:** GMLRS AW Initial Operational Capability
- **2QFY17:** First GMLRS AW combat mission

## PROJECTED ACTIVITIES

- **4QFY21:** Extended Range GMLRS modification Full Materiel Release

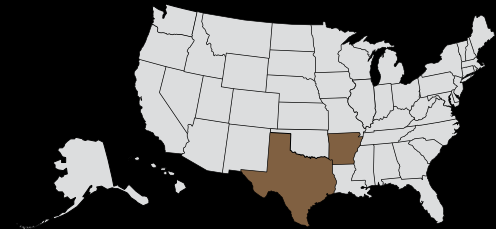
# GMLRS

## FOREIGN MILITARY SALES

FMS procurement activities underway

## CONTRACTORS

Lockheed Martin (Grand Prairie, TX; Camden, AR)



# Handheld, Manpack and Small Form Fit (HMS)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD

## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Handheld, Manpack and Small Form Fit (HMS) develops and produces affordable networking tactical radio systems that meet the requirements of the Army, Marine Corps, Navy, Air Force and Special Operations Command (SOCOM), and are interoperable with specified radios in the current forces. HMS is a family of networking tactical radio systems, including the 1-channel Rifleman Radio, the 2-channel Manpack Radio and the 2-channel Leader Radio that are interoperable with specified radios in the current forces.

## BENEFIT TO THE SOLDIER

HMS provides joint interoperable connectivity to the tactical edge and to the most disadvantaged warfighter with an on-the-move, at-the-halt and stationary line-of-sight and beyond-line-of-sight capability for both dismounted personnel and platforms. The radios are scalable and compliant with modular software communications architecture, enable net-centric operations, operate multiband and multimode, and deliver reliable, secure tactical communications.

## SPECIFICATIONS

- **Leader Radio:** Two channels — Soldier Radio Waveform (SRW), Single Channel Ground and Airborne (SINGARS) and Trellisware Waveform (TSM)
- **Manpack Radio:** SRW, SINGARS, TSM, Ultra High Frequency Satellite Communications and legacy waveforms

## PROGRAM STATUS

- **FY16:** Manpack Full Rate Production (FRP) vendor source selection
- **FY17:** Leader Radio and Manpack Radio Contract Award for testing
- **FY18:** Low Rate Initial Production (LRIP) for Manpack Radio
- **4QFY18:** Anticipated LRIP for Leader Radio

## PROJECTED ACTIVITIES

- **1QFY19:** Manpack and Leader Radio Operational Test
- **3QFY19:** FRP for Manpack and Leader Radio
- **FY20-FY23:** Continued deliveries of both Manpack and Leader Radios



# HMS

## FOREIGN MILITARY SALES

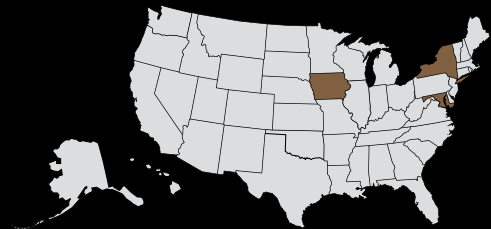
None

## CONTRACTORS

**Leader Radio:** Thales Defense & Security, Inc. (Clarksburg, MD) Harris (Rochester, NY)

**Manpack:** TBD

**Manpack Radios:** Rockwell Collins (Cedar Rapids, IA) Harris (Rochester, NY)



# Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES) Improved Recovery Vehicle – M88A2

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M88A2 Improved Recovery Vehicle HERCULES (Heavy Equipment Recovery Combat Utility Lift and Evacuation System) recovers tanks mired to different depths, removes and replaces tank turrets and power packs, and uprights overturned heavy combat vehicles. The main winch on the M88A2 is capable of a 70-ton, single-line recovery, allowing the HERCULES to provide recovery of the 70-ton M1A2 Abrams tank.

The A-frame boom and hoist winch of the M88A2 can lift 35 tons. The spade can be used to anchor the vehicle when using the main winch and can be used for light earth moving to prepare a recovery area. The M88A2 employs an auxiliary power unit to provide auxiliary electrical and hydraulic power when the main engine is not in operation. It can also be used to slave start other vehicles, as well as a means to refuel or defuel vehicles. The M88A2 can refuel Abrams tanks from its own fuel tanks.

The M88A2 HERCULES is the successor vehicle to the M88A1, which only had a recovery capability of 56 tons. The M88A1's mission was focused on the M60 Series tank while the M88A2 is focused on the Abrams tank.

## BENEFIT TO THE SOLDIER

The HERCULES provides towing, winching and hoisting to support battlefield recovery operations and evacuation of heavy tanks and other tracked combat vehicles. As such, HERCULES is the recovery workhorse of the Armored Brigade Combat Team (ABCT).

## SPECIFICATIONS

- Crew: Three, plus space for four passengers
- Weight: 70 tons
- Length: 338 inches
- Width: 144 inches

- Height: 127 inches
- Speed (no load): 30 mph
- Speed (with load): 26 mph with 70-ton load
- Cruising Range: 300 miles, 413 gallons
- Boom Lift Height: 25 feet
- Engine: 1,050 horsepower
- Armament: .50 Caliber M2

## PROGRAM STATUS

- **FY16-FY18:**
  - M88A2 production (converted from M88A1) continued at approximate rate of four vehicles per month at the BAE facility in York, Pennsylvania. Production for the Army through Fiscal Year 2018 (FY18) is 809 vehicles toward an Army Acquisition Objective (AAO) of 933.
  - M88A2 HERCULES Fielding and New Equipment Training completed for Army units in the United States, Germany, Kuwait and Korea
  - Operational Modification for fielded vehicles continued and modification work order installations were completed on 652 M88A2s
  - Initiated an Engineering Change Proposal (ECP) to regain Single Vehicle Recovery (SVR) of the heaviest tracked vehicles with receipt of FY18 Research, Development, Test and Evaluation (RDT&E) funding

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - M88A2 production expected to complete 90 percent in 2QFY20
  - M88A2 production toward the AAO of 933 planned for completion in FY23
  - M88A2 fielding will be conducted for the 16th ABCT and the European Deterrence Initiative Army Preposition Stock-2 ABCT

- RDT&E SVR ECP development will continue
- Combat Recovery Systems Product Management Office intends to award up to three prototype agreements via the Detroit Arsenal Automotive Other Transaction Agreement in late FY19. These prototype agreements seek to regain lost capability for the M88A2. By inserting new or modified M88A2 component hardware, contractors shall provide a concept demonstrator capable of SVR of the heaviest tracked combat vehicle (M1 Abrams with force protection kits applied).
- Funding dependent, a competitive prototyping effort will conclude no later than FY22 with a government led “run-off” test event to select a winning contractor/concept. This effort will transition into further development of prototypes to support government test, logistics products development, and vehicle production in support of fielding this enhanced capability to the ABCTs.

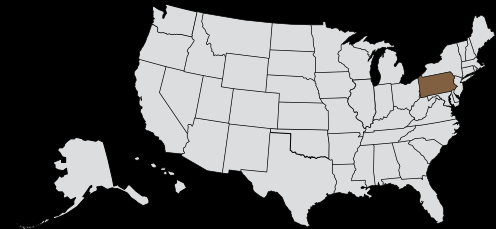
# HERCULES

## FOREIGN MILITARY SALES

Australia, Egypt, Iraq, Kuwait, Lebanon and Thailand

## CONTRACTORS

BAE Systems (York, PA)



# Heavy Expanded Mobility Tactical Truck (HEMTT)/ HEMTT Extended Service Program (ESP)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The Heavy Expanded Mobility Tactical Truck (HEMTT) consists of a family of 4-axle 8-wheel drive tactical vehicles, including multiple cargo, tanker, tractor, wrecker and load handling variants. The Cargo variants carry up to 11-ton payloads, while the Load Handling System (LHS) variant can carry flat racks and International Organization for Standardization containers up to 13 tons. The Tanker has a 2,500-gallon bulk fuel capacity, and the Wrecker provides lift tow and flat tow capability for the Army's wheeled vehicle fleet. There are two tractor variants in the HEMTT family: one for towing engineer equipment, with a Gross Vehicle Weight Rating (GVWR) of 151,000 pounds and one for towing PATRIOT semitrailers with a Gross Combination Weight Rating (GCWR) of 109,000 pounds.

The latest generation of HEMTTs, the A4 vehicle model, has significant upgrades from the predecessor A2 and Basic HEMTTs, including: a common cab with the Palletized Load System (PLS) A1; appliqué armor protection together with A-cab having integral under cab protection and provisions for mounting the armor B-kit; an improved power train (engine and transmission); an anti-lock braking system; traction control; updated electrical system; climate control and air ride suspension.

Older Basic and A2 HEMTT models are being updated to the latest A4 configuration through the HEMTT Extended Service Program (ESP)/HEMTT RECAP, a recapitalization program that converts high-mileage, older-version HEMTT trucks into the current A4 production configuration with a zero mile new vehicle warranty.

## BENEFIT TO THE SOLDIER

The HEMTT's primary mission is to deliver high tonnages of supplies (all classes) to combat and combat support units across all tactical mobility levels as far forward as mission, enemy, troops, terrain, and time and civil considerations allow.

## SPECIFICATIONS

### HEMTT Familywide:

- Size: 8x8 chassis with up to 8-wheel drive capability
- GVWR: Ranges from 64,000 to 105,000 pounds
- Engine: Caterpillar C15 (15.2 L, 500 horsepower)
- Transmission: Allison 4500 SP (5-speed automatic)
- LTAS B-Kit Ready
- LED Headlights
- Common Cab with PLSA1
- Max towing speed 62 mph with full payload on flat terrain

### M985 Cargo:

- GVWR: 70,000 pounds (78,500 with armor)
- Crane: Grove 5,400 pounds at 16.5 feet

### M977 Cargo:

- GVWR: 64,000 pounds (72,500 with armor)
- Crane: Grove 2,500 pounds at 19 feet

### M985A4 GMT:

- GVWR: 64,000 pounds (72,500 with armor)
- Crane: Hiab 4,500 pounds at 20.5 feet

### M1120 LHS:

- GVWR: 68,000 pounds (76,500 with armor)
- LHS 26,000 pounds (including flat rack)

### M978A4 Tanker:

- GVWR: 64,000 pounds (72,500 with armor)
- Bulk fuel capacity: 2,500 gallons

### M984A4 Wrecker:

- GVWR: 97,000 pounds (105,500 with armor)
- GCWR: 114,500 pounds (161,000 pounds with armor)
- Crane: Grove 14,000 pounds at 9 feet



- Recovery Winch: 60,000 pounds
- Retrieval System: 25,000 pounds

**M983A4 Patriot Tractor:**

- GCWR: 109,000 pounds
- Fifth wheel: 21,000 pounds; 3.5-inch kingpin

**M983A4 LET:**

- GCWR: 151,000 pounds
- Fifth wheel: 40,000 pounds; 3.5-inch kingpin
- Recovery Winch: 45,000 pounds

**PROGRAM STATUS**

**FY16-FY18:**

- Continue to produce and field ESP HEMTTs to Active Army, National Guard, Reserve and Preposition Stocks. Modernizing the fleet to one model reduces the logistics footprint and operational and sustainment costs of maintaining older vehicles.

**PROJECTED ACTIVITIES**

**FY19-FY23:**

- Review acquisition courses of action for ongoing modernization alternatives for the family of HEMTT vehicles

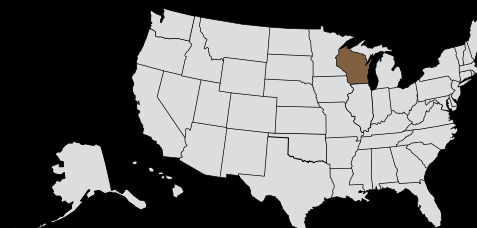
# HEMTT/ESP

**FOREIGN MILITARY SALES**

Worldwide sales

**CONTRACTORS**

Oshkosh (Oshkosh, WI)



**M977A4**  
Cargo  
with  
crane



**M985A4**  
GMT  
Cargo



**M985A4**  
Cargo  
with  
crane



**M983A4**  
PATRIOT  
Tractor

# HELLFIRE Family of Missiles

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The AGM-114 HELLFIRE Family of Missiles includes the HELLFIRE II and Longbow HELLFIRE Missiles. HELLFIRE II is a precision strike, Semi-Active Laser (SAL)-guided missile and is the principal air-to-ground weapon for the Army AH-64 Apache, OH-58 Kiowa Warrior, MQ-1C Gray Eagle Unmanned Aircraft System (UAS), Special Operations aircraft, Marine Corps AH-1W Super Cobra, and Air Force Predator and Reaper UAS.

The SAL HELLFIRE II missile is guided by laser energy reflected off the target. It has three warhead variants: a dual-warhead, shaped-charge, high-explosive anti-tank capability for armored targets (AGM-114K); a blast fragmentation warhead for urban, patrol boat and other “soft” targets (AGM-114M); and a metal-augmented charge warhead (AGM-114N) for urban structures, bunkers, radar sites, communications installations and bridges.

Beginning in 2012, a HELLFIRE II multipurpose warhead variant (AGM-114R) became available to the warfighter and allows selection of warhead effects corresponding to a specific target type. The AMG-114R is capable of being launched from Army rotary-wing and UAS platforms and provides the pilot increased operational flexibility.

The Longbow HELLFIRE (AGM-114L) is also a precision strike missile using Millimeter Wave (MMW) radar guidance instead of the HELLFIRE II's SAL. It is the principal anti-tank system for the AH-64D Apache Longbow helicopter and uses the same anti-armor warhead as the HELLFIRE II. The MMW seeker provides beyond-line-of-sight, fire-and-forget capability, as well as the ability to operate in adverse weather and battlefield obscurants.

## BENEFIT TO THE SOLDIER

HELLFIRE provides the warfighter with an air-to-ground, point-target precision strike capability to defeat advanced armor and an array of traditional and nontraditional targets.

## SPECIFICATIONS

- Diameter: 7 inches
- Weight: 99.8-107 pounds
- Length: 64-69 inches
- HELLFIRE II AGM-114R maximum range:
  - Direct fire: 7 km
  - Indirect fire: 8 km
  - Minimum range: 0.5-1.5 km

## PROGRAM STATUS

- **FY16-FY18:** HELLFIRE II missiles procured annually to replace combat expenditures

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Laser HELLFIRE to continue in Production
  - Longbow HELLFIRE to continue sustainment activities



# HELLFIRE

## FOREIGN MILITARY SALES

**Laser HELLFIRE:** Australia, Egypt, France, Greece, Israel, Japan, Kuwait, Netherlands, Saudi Arabia, Singapore, Spain, Sweden, Taiwan, United Arab Emirates and United Kingdom

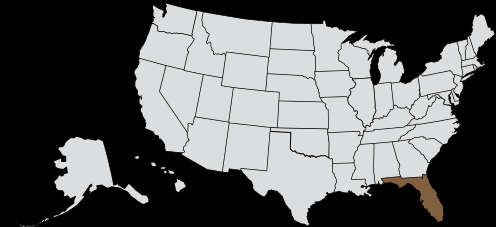
**Direct commercial sales:** Netherlands, Norway, Saudi Arabia, Turkey and United Kingdom

**Longbow HELLFIRE:** Israel, Japan, Kuwait, Singapore, Taiwan and United Arab Emirates

**Direct commercial sales:** United Kingdom

## CONTRACTORS

Lockheed Martin (Orlando, FL)



# High Mobility Artillery Rocket System (HIMARS) – M142

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M142 High Mobility Artillery Rocket System (HIMARS) is a full-spectrum, combat-proven, all-weather, 24/7, lethal and responsive, wheeled precision strike weapons system. HIMARS is a C-130 air transportable wheeled launcher mounted on a 5-ton Family of Medium Tactical Vehicles XM1140A1 truck chassis organic/assigned to Field Artillery Brigades. The current HIMARS includes an increased crew protection armored cab. HIMARS supports an expeditionary, lethal, survivable and tactically mobile force. It will launch all Multiple Launch Rocket System (MLRS) Family of Munitions rockets and missiles. The HIMARS carries one launch pod containing either six Guided MLRS (GMLRS)/MLRS rockets or one Army Tactical Missile System (ATACMS) missile.

HIMARS is designed to support joint early and forced entry expeditionary operations with high-volume destructive, suppressive and counter-battery fires. When firing GMLRS-Unitary precision rockets, HIMARS can achieve ranges of 70-plus kilometers, attacking the target with low-collateral damage, enabling danger-close fires (within 200 meters) in support of friendly troops in contact, as well as engaging high-valued point targets in open, urban and complex environments. Development efforts include establishing a Common Fire Control System between the HIMARS and MLRS launchers. The Army fleet expansion effort plans to increase the HIMARS fleet.

## BENEFIT TO THE SOLDIER

The HIMARS launcher provides 24-hour, all-weather, lethal, close- and long-range precision rocket and missile fire support for joint forces, early-entry expeditionary forces, contingency forces and field artillery brigades supporting Brigade Combat Teams. HIMARS is rapidly deployable by C-130, quickly enhancing combat effectiveness.

## SPECIFICATIONS

- Empty weight: 29,800 pounds
- Combat loaded weight: 35,800 pounds
- Max speed: 94 km per hour
- Max cruising range: 483 km
- Ordnance options: All current and future MLRS rockets and ATACMS missiles

## PROGRAM STATUS

- **3QFY17:** 16 HIMARS to Europe (European Deterrence Initiative)
- **3QFY18:** Contract award for 24 HIMARS

## PROJECTED ACTIVITIES

- **4QFY19:** Contract award for 27 HIMARS
- **4QFY21:** Common Fire Control System Production
- **2QFY22:** Contract award for 13 HIMARS

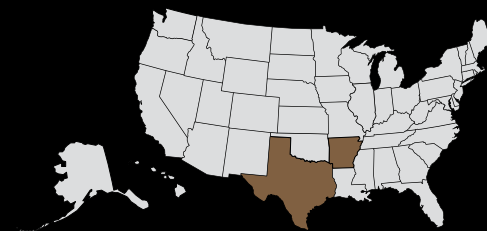
# HIMARS — M142

## FOREIGN MILITARY SALES

FMS procurement activities are underway

## CONTRACTORS

Lockheed Martin (Grand Prairie, TX; Camden, AR)



# High Mobility Multipurpose Wheeled Vehicle (HMMWV)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## DESCRIPTION

The High Mobility Multipurpose Wheeled Vehicle (HMMWV) is a lightweight, highly mobile, high-performance, diesel-powered four-wheel drive, air-transportable and air-droppable family of tactical vehicles. The HMMWV supports combat and combat service support units with a versatile, mission-configurable, tactical wheeled vehicle.

The Army recognizes the tactical importance of the HMMWV fleet and the enduring requirement to maintain a relevant, capable fleet to support the Army enterprise. Congressional funding has enabled the modernization of the U.S. Army National Guard (NG) and Reserve HMMWV fleets.

The NG and Reserve modernization program consists of recapitalizing M1152A1 and M1165A1 Up-Armored HMMWV (UAH) Shelter and Troop Carriers; converting M1151A1 UAH Armament Carriers to M1167 UAH Tube-Launched, Optically Tracked, Wireless-Guided Missile Carriers; and purchasing new M997A3 ambulances. The recapitalization efforts involve a Public-Private Partnership (PPP) between AM General and the Red River Army Depot (RRAD). The M997A3 effort is a joint effort with the chassis built by AM General and furnished to Rock Island Arsenal (RIA) for installation of an RIA-built box.

## BENEFIT TO THE SOLDIER

With configurations to meet multiple mission types and roles, the HMMWV is well-suited to meet the needs of Soldiers in several situations. Its high power-to-weight ratio, high ground clearance and four-wheel drive are designed for agility and mobility in difficult terrain.

## SPECIFICATIONS

- Gross vehicle weight: 11,500 pounds
- Wheelbase: 130 inches

- Engine: General Engine Products V8, 6.5-liter turbocharged diesel, 190 horsepower at 3,400 revolutions per minute
- Fuel Capacity: 25 gallons
- Payload: 3,350 pounds
- Maximum speed: 70 mph

## PROGRAM STATUS

- **1QFY14-FY24:** M997A3 Ambulance Production at RIA
- **4QFY14-3QFY19:** NG M1152 and M1165 modernization PPP between AM General and RRAD
- **FY16-1QFY19:** M1151A1 to M1167 Conversion Recapitalization PPP between AM General and RRAD

## PROJECTED ACTIVITIES

- **FY19:**
  - Begin modernization of the NG M1097 non-armored HMMWV
  - Delivery of first vehicles equipped with anti-lock braking and electronic stability control safety upgrades

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

# HMMWV

## FOREIGN MILITARY SALES

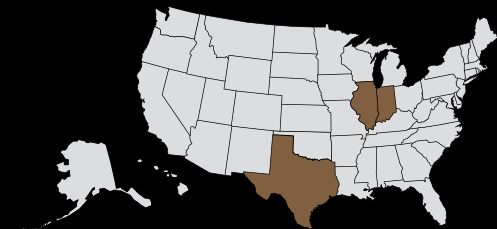
Afghanistan, Argentina, Bahrain, Bulgaria, Burundi, Chile, Colombia, Croatia, Czech Republic, Ecuador, Egypt, El Salvador, Ethiopia, Georgia, Hungary, Iraq, Israel, Jordan, Kenya, Latvia, Lebanon, Macedonia, Mauritania, Mexico, Nepal, Philippines, Romania, Saudi Arabia, Serbia, Slovenia, Tunisia, Uganda, United Arab Emirates and Yemen

## CONTRACTORS

AM General (South Bend, IN)

**New Production Ambulances:** Joint Manufacturing & Technology Center (Rock Island, IL)

**Lead Government Integrator:** Red River Army Depot (Texarkana, TX)



# Hydra-70 2.75 Inch Rocket Systems

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Hydra-70 Rocket System of 2.75-inch air-launched rockets is employed by tri-service and special operating forces on both fixed- and rotary-wing aircraft and is inherently immune to countermeasures. This highly modular rocket family incorporates several different mission-oriented warheads for the Hydra-70 variant, including high-explosive, anti-personnel, multipurpose submunition, red phosphorus smoke, flechette, training, visible-light illumination flare and infrared illumination flare.

## BENEFIT TO THE SOLDIER

Hydra provides the warfighter with an air-to-ground suppression, smoke screening, illumination, and direct and indirect fires capability to defeat area, materiel and personnel targets at close and extended ranges. This Advanced Precision Kill Weapon System II guidance package will infuse precision into the current Hydra-70 weapon system by providing increased stowed kills and point target accuracy while providing capability for low-collateral damage engagements against lightly armored and soft point targets.

## SPECIFICATIONS

- Diameter: 2.75 inches
- Weight: 23-27 pounds (warhead dependent)
- Length: 55-70 inches (warhead dependent)
- Range: 300-8,000 meters
- Velocity: 700-plus meters per second
- Area suppression: No precision

## PROGRAM STATUS

- **FY16-FY18:** In Production

## PROJECTED ACTIVITIES

- **FY19-FY23:** Continue Production





# Hydra-70

## FOREIGN MILITARY SALES

21 countries including Egypt, India, Iraq, Japan and others

## CONTRACTORS

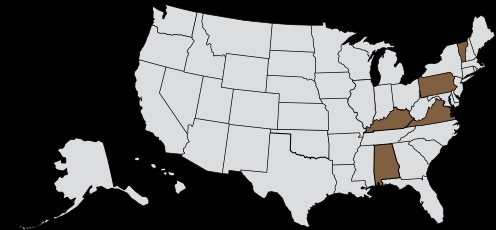
**Prime System:** General Dynamics (Burlington, VT)

**Grain:** BAE Systems (Radford, VA)

**Warhead Fuses:** Action Manufacturing (Philadelphia, PA)

**Shipping Container (Fastpack):** CONCO (Louisville, KY)

**Fin and Nozzle:** General Dynamics Ordnance and Tactical Systems (Anniston, AL)



# Indirect Fire Protection Capability (IFPC) Increment 2 – Intercept Block 1

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Indirect Fire Protection Capability Increment 2 – Intercept (IFPC Increment 2-I) Block 1 System is a mobile, ground-based weapon system designed to defeat unmanned aircraft systems (UAS) and cruise missiles.

The Block 1 System will use an existing interceptor and sensor and will develop a Multi-Mission Launcher (MML) on an existing vehicle platform to support the Counter-UAS (C-UAS) and Cruise Missile Defense (CMD) missions. The system will use the Army Integrated Air and Missile Defense (AIAMD) open systems architecture, and will use the AIAMD Integrated Battle Command System as its mission command component.

## BENEFIT TO THE SOLDIER

IFPC Increment 2-I Block 1 mitigates high-priority capability gaps in two mission areas: CMD and C-UAS.

## SPECIFICATIONS

- Provides 360-degree protection
- Provides ability to simultaneously engage threats arriving from different azimuths
- MML will use an open architecture that allows the employment of a variety of missiles

## PROGRAM STATUS

- **2QFY16:** Engineering Demonstration
- **3QFY17:** Critical Design Review
- **4QFY18:** Milestone B Decision

## PROJECTED ACTIVITIES

- To be determined

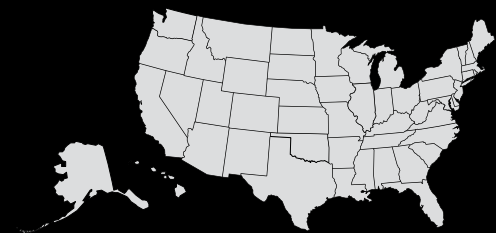
# IFPC Increment 2-1

## FOREIGN MILITARY SALES

None

## CONTRACTORS

None



# Integrated Personnel and Pay System-Army (IPPS-A)

PEO Enterprise Information Systems | Fort Belvoir, VA

## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Integrated Personnel and Pay System-Army (IPPS-A), an online Human Resources (HR) PeopleSoft (9.2) solution, is the vehicle that will allow the Army to transform from an industrial age personnel system to a 21st Century talent management system. IPPS-A integrates personnel and pay while providing three main capabilities: Total Force Visibility, Talent Management and Auditability.

## BENEFIT TO THE SOLDIER

IPPS-A is easy to use – it automates numerous manual HR and pay processes, allows mobile access to personal pay and HR data, tracks personnel actions from start to finish (approved changes reflect in pay and personal profile immediately), captures talent within units, shows unit readiness and captures all actions in one place. IPPS-A is auditable and reduces errors affecting Soldiers.

## SPECIFICATIONS

- Online comprehensive personnel and pay system
- Provides near real-time 24/7 self-service capabilities
- Accessible to Soldiers, commanders and HR Professionals
- Provides complete visibility of the Total Force in one HR system
- Enables the Army to manage the talents of the Total Force based on Soldiers' knowledge, skills and behaviors
- Provides audit capability for pay and benefits to ensure the best use of Army dollars to employ human capital

## PROGRAM STATUS

- **1QFY16:** Increment II System Requirements Review
- **2QFY16:** Increment II System Functional Review
- **4QFY16:** Increment II Preliminary Design Review
- **2QFY17:** Increment II Critical Design Review
- **3QFY18:** Increment II Release 2 Adversarial Assessment

## PROJECTED ACTIVITIES

- **2QFY19:** Release 2 Limited Deployment Authority to Proceed (ATP)
- **2QFY20:** Release 3 Limited Deployment ATP
- **4QFY20:** Release 4 Full Deployment ATP
- **FY21-FY23:** Pre-Planned Product Improvement Events



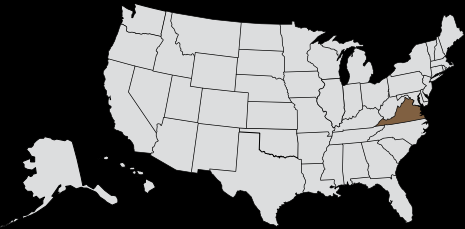
# IPPS-A

## FOREIGN MILITARY SALES

None

## CONTRACTORS

CACI (Chantilly, VA)



# Javelin

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Javelin Close Combat Missile System – Medium (CCMS-M) is a man-portable, medium-range tactical missile system that provides the U.S. Army and Marine Corps with precision direct-fire effects to defeat main battle tanks and other armored vehicles as well as personnel and equipment in fortifications or in the open. Javelin is highly effective against a variety of targets at extended ranges during day or night operations, and under battlefield obscurants, adverse weather and multiple countermeasure conditions. The system's soft-launch feature permits firing from enclosures commonly found in complex urban terrain, while its modular design allows the system to evolve to meet changing threats and requirements via both software and hardware upgrades. The system consists of a reusable command launch unit (CLU) and a modular missile encased in a disposable launch tube assembly. The CLU provides stand-alone surveillance capability ideally suited for infantry operations in Afghanistan.

Javelin's fire-and-forget technology allows the gunner to fire and immediately take cover, move to another fighting position or reload. Javelin provides enhanced lethality through the use of tandem warheads that defeat all known armor threats, and can be used against stationary or moving targets. This system also provides defensive capability against attacking or hovering helicopters. A new multipurpose warhead will be incorporated into the Fiscal Year 2018 procurement that will improve lethality against soft targets while still meeting all anti-armor requirements. A Lightweight CLU is in development with the goal of reducing the current CLU weight by at least 25 percent and size by at least 30 percent.

## BENEFIT TO THE SOLDIER

Javelin provides the Army, Marine Corps and our allies a man-portable, fire-and-forget missile system that is highly lethal against objects ranging from main battle tanks to fleeting targets of opportunity found in current threat environments.

## SPECIFICATIONS

- Weight (Block 1 Missile and CLU combined): 48.8 pounds (Missile: 33.3 pounds; CLU: 15.5 pounds).
- Diameter: 127 mm
- Range: Qualified to 2,500 meters; demonstrated performance to 4,000 meters in most operational conditions
- System includes devices for tactical and classroom training

## PROGRAM STATUS

- **FY16-FY18:**
  - Continued Lightweight CLU development
  - Continued G-model missile modernization and cost reduction initiative
- **FY18:**
  - Begin procurement of new F-model missile with multipurpose warhead
  - Army funded to begin retrofitting Block 0 CLUs to Block 1 configuration to pure fleet the Block 1 capability

## PROJECTED ACTIVITIES

- **FY19-FY23:** Funding procures missile quantities to maintain current Total Army Munition Requirements
- **FY19:** Army funded to retrofit all remaining Block 0 CLUs to Block 1 configuration
- **FY19-FY20:** Complete development and qualification of Lightweight CLU
- **FY21:** Begin procurement of Lightweight CLU

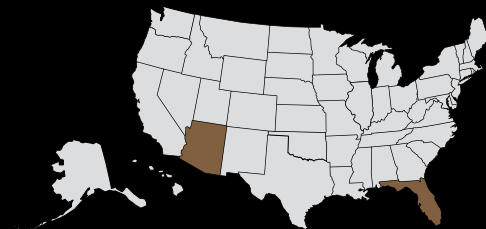
# Javelin

## FOREIGN MILITARY SALES

Australia, Czech Republic, Estonia, France, Georgia, Indonesia, Ireland, Jordan, Lithuania, New Zealand, Norway, Oman, Qatar, Taiwan, Turkey, Ukraine, United Arab Emirates and United Kingdom

## CONTRACTORS

Lockheed Martin (Orlando, FL)  
Raytheon (Tucson, AZ)



# Joint Air-to-Ground Missile (JAGM)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Air-to-Ground Missile (JAGM) System provides an improved air-to-ground missile capability for rotary wing aircraft and unmanned aerial systems. The JAGM is an aviation-launched, precision-guided munition for use against high-value stationary, moving and relocatable land and naval targets. JAGM utilizes a multimode seeker to provide precision point and fire-and-forget targeting day or night in adverse weather, battlefield obscured conditions, and against a variety of countermeasures. A multipurpose warhead provides lethal effects against a range of target types, from armored vehicles, thin-skinned vehicles and maritime patrol craft to urban structures and field fortifications. JAGM delivers the joint services a single air-to-ground missile with improved lethality, operational flexibility and a reduced logistics footprint.

## BENEFIT TO THE SOLDIER

The JAGM provides the warfighter the ability to destroy high-value stationary, moving and relocatable land and naval targets from standoff range day or night, in adverse weather and in battlefield-obscured conditions.

## SPECIFICATIONS

- Diameter: 7 inches
- Weight: 115 pounds
- Length: 69 inches
- Range: 500-8,000 meters

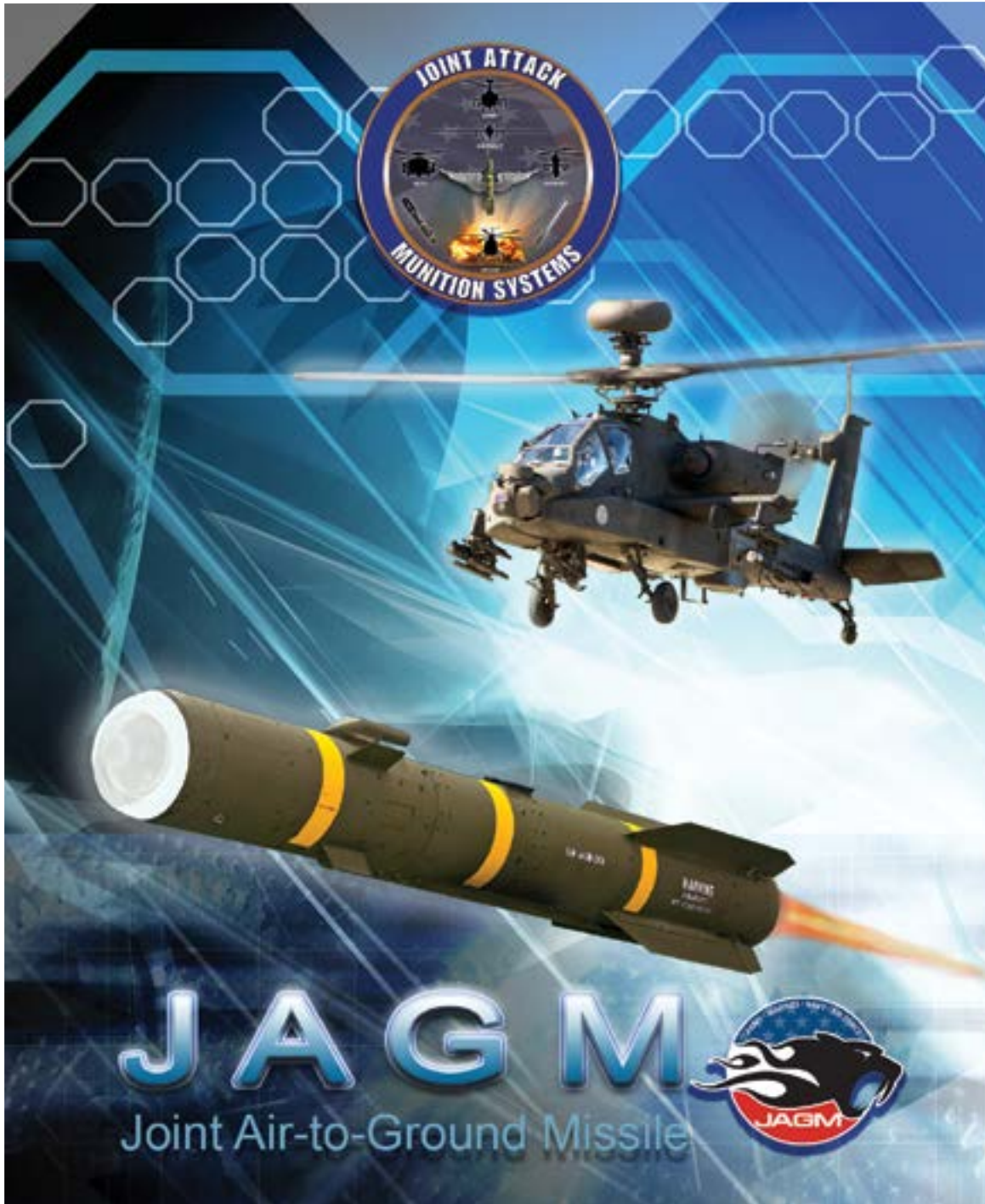
## PROGRAM STATUS

- **2QFY18:** Limited User Testing
- **3QFY18:** Milestone C Low Rate Initial Production Decision

## PROJECTED ACTIVITIES

- **2QFY19:** Initial Operational Capability
- **2QFY20:** Full Rate Production Decision





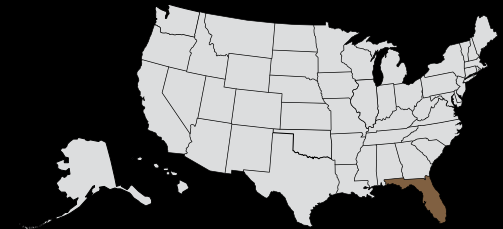
# JAGM

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Lockheed Martin (Orlando, FL)



# Joint Light Tactical Vehicle (JLTV)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV) is an Army-led, joint-service program designed to replace a portion of each service's light tactical wheeled vehicle fleets while closing an existing capability gap. Intended to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations, the JLTV FoV will restore the fleet's balance of payload, performance and protection.

The JLTV FoV consists of two variants: the 4-seat Combat Tactical Vehicle (CTV) and the 2-seat Combat Support Vehicle (CSV). The CTV will support the General Purpose, Heavy Gun Carrier and Close Combat Weapon Carrier missions. The CSV will support the Utility/Shelter Carrier mission. The JLTV is transportable by a range of lift assets, including rotary-wing aircraft, to support operations across the range of military operations. Its maneuverability enables activities across the spectrum of terrain, including urban areas, while providing inherent and supplemental armor against direct fire and improvised explosive device threats.

## BENEFIT TO THE SOLDIER

JLTV provides the warfighter significantly more protection against multiple threats while increasing mobility and payload compared to the current armored High Mobility Multipurpose Wheeled Vehicle platforms. JLTV provides improved off-road mobility, fuel efficiency and reliability over Mine Resistant Ambush Protected All-Terrain Vehicles.

## SPECIFICATIONS

- Transportability: Internal–C-130; External–CH-47 at curb weight plus 2,000 pounds and CH-53; Sea—including height-restricted decks
- Payloads: CTV–3,500 pounds; CSV–5,100 pounds

- Protection: Scalable armor to provide mission flexibility while protecting the force
- Mobility: Maneuverability to enable operations across the spectrum of terrain, including urban areas
- Networking: Provides joint forces network connectivity that improves situational awareness of the operational environment while enabling a responsive and well-integrated command and control

## PROGRAM STATUS

- **1QFY16-3QFY18:** Completed Multiservice Operational Test and Evaluation and accepted delivery of 1,809 vehicles

## PROJECTED ACTIVITIES

- **4QFY18:** Finalize Full Rate Production (FRP) Decision documentation and conduct Physical Configuration Audit
- **1QFY19:** Conduct FRP Decision Review
- **2QFY19:** Army First Unit Equipped



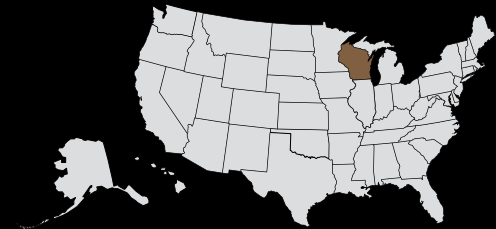
# JLTV

## FOREIGN MILITARY SALES

United Kingdom

## CONTRACTORS

Oshkosh (Oshkosh, WI)



# Lakota Light Utility Helicopter (LUH) – UH-72A

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The UH-72A Light Utility Helicopter (LUH) is a Commercial/ Non-Developmental-Item, twin-engine helicopter with seating for two pilots, capable of transporting up to six passengers. The medical evacuation (MEDEVAC) configuration is equipped with two North Atlantic Treaty Organization standard litters and seating for a medical attendant and crew chief. Visual and instrument flight certified, the UH-72A is equipped with a night-vision-compatible glass cockpit and modern communications and navigation avionics, including autopilot and dual Global Positioning Systems with Wide Area Augmentation System. Other aircraft configurations include Combat Training Center Opposing Forces and Observer/Controller, Security and Support and VIP. Since 2016, the UH-72A has been used at Fort Rucker, Alabama, for the Initial Entry Rotary Wing/Basic Warfighting Skills Trainer.

## BENEFIT TO THE SOLDIER

The UH-72A Lakota is a light helicopter that operates worldwide in permissive environments to meet Homeland Defense and Security, general support, reconnaissance, command and control operations, search and rescue, and training requirements. Homeland Defense and Security missions include assistance to border patrol operations, terrorist incident response, counterdrug operations and disaster relief missions, as well as Generating Force MEDEVAC capability for the U.S. Army National Guard.

## SPECIFICATIONS

- Maximum speed: 145 knots
- Range: 370 nautical miles
- Endurance: 3.5 hours
- Maximum takeoff weight: 7,903 pounds

## PROGRAM STATUS

- **1QFY17:** Awarded follow on Contractor Logistics Support Contract
- **1QFY18:** Army Acquisition Objective increase to 462 aircraft
- **2QFY18:** Awarded undefinitized contract actions for production of 51 aircraft

## PROJECTED ACTIVITIES

- **4QFY18-1QFY19:** Definitize follow-on Production Contract for 51 aircraft
- **3QFY18:** Sources Sought for production of 11 aircraft
- **1QFY22:** Transition to Sustainment

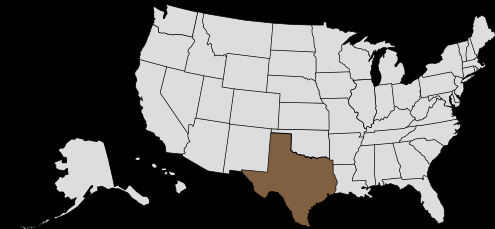
# Lakota UH-72A

## FOREIGN MILITARY SALES

Thailand

## CONTRACTORS

Airbus Helicopter, Inc. (Grand Prairie, TX)



# Mine Resistant Ambush Protected Vehicles (MRAP)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Mine Resistant Ambush Protected (MRAP) family of vehicles provides Soldiers with highly survivable multimission platforms capable of mitigating improvised explosive devices, rocket-propelled grenades, explosively formed penetrators, underbody mines and small arms fire threats which produce the greatest number of casualties in Overseas Contingency Operations.

The Army MRAP enduring fleet is comprised of two primary vehicle platforms, the Mine Resistant Ambush Protected All-Terrain Vehicle (M-ATV) and the MaxxPro Family of Vehicles. This versatile family of vehicles performs the mission roles of Armored Personnel Carrier, Weapons Carrier, Convoy Protection Platform, Key Leader Vehicle, Command Post and Armored Ambulance.

## BENEFIT TO THE SOLDIER

MRAP provides light forces with protected mobility and mounted firepower to perform Wide Area Security while countering threats employing asymmetric tactics. They provide a rapid motorization capability for Brigade Combat Teams as the mission transitions from decisive operations to stability, or perform rear-area security during decisive operations.

## SPECIFICATIONS

- Key components (transmissions, engines, etc.) vary between vehicles, consisting of common commercial and military parts
- Combat weight (fully loaded without add-on armor): 34,000-48,000 pounds
- Payloads: In the 4,000-pound range
- Engine: 370-375 horsepower
- Operational range: 300-370 miles

## PROGRAM STATUS

- **1QFY16-4QFY18:** Continued support of MRAP vehicles fielded to units and in response to urgent theater requirements
- **4QFY16:** Completed RESET of MaxxPro Long Wheel-Base Ambulance
- **4QFY17:** Attained Full Material Release (FMR) for MaxxPro vehicles
- **1QFY18:** Completed M-ATV RESET/Standardization of the 5,395 enduring requirement
- **3QFY18:** Completed RESET of MaxxPro Dash
- **4QFY18:**
  - Completed Fielding of MaxxPro Long Wheel-Base Ambulance
  - Fielding of MaxxPro Dash ongoing

## PROJECTED ACTIVITIES

- **2QFY18-2QFY20:** System National Maintenance Work Requirement underway
- **1QFY19:** MaxxPro Dash planned fieldings complete
- **2QFY19:** MaxxPro transitions to Sustainment
- **1QFY20:** M-ATV to achieve FMR
  - M-ATV continues to field as Associated Support Items of Equipment to Project Manager Prophet
  - M-ATV continues to field to Explosive Ordnance Disposal units in accordance with letter of agreement with the U.S. Army National Guard



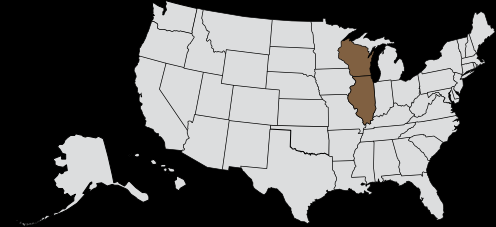
# MRAP

## FOREIGN MILITARY SALES

Afghanistan, Burundi, Croatia, Djibouti, Iraq, Jordan, Nigeria, Pakistan, Spain, Uganda and Uzbekistan

## CONTRACTORS

Navistar Defense (Warrenville, IL)  
Oshkosh (Oshkosh, WI)



# Multiple Launch Rocket System (MLRS) — M270A1

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Multiple Launch Rocket System (MLRS) M270A1 is a full-spectrum, combat-proven, all-weather, 24/7 lethal and responsive, tracked precision strike weapon system organic or assigned to Field Artillery Brigades. The M270A1 program consists of a modified M993A1 Bradley Carrier mounted with the M269 Launcher Loader Module. It will launch all MLRS Family of Munitions (MFOM) rockets and missiles.

The MLRS carries two launch pods, each containing either six Guided MLRS (GMLRS)/MLRS rockets or one Army Tactical Missile System missile. When firing GMLRS-Unitary precision rockets, MLRS can achieve ranges of 70-plus kilometers, attacking the target with low-collateral damage, enabling danger-close fires (within 200 meters) in support of friendly troops in contact, as well as engaging high-valued point targets in open, urban and complex environments. Development efforts include the Improved Armored Cab for enhanced crew survivability and establishing a Common Fire Control System between MLRS and the High Mobility Artillery Rocket System M142 launcher. The Army Fleet Expansion effort plans to increase the MLRS fleet.

## BENEFIT TO THE SOLDIER

The MLRS Launcher provides 24-hour, all-weather, lethal, close- and long-range precision rocket and missile fire support for joint forces, early-entry expeditionary forces, contingency forces and Field Artillery Brigades supporting Brigade Combat Teams.

## SPECIFICATIONS

- Empty weight: 45,086 pounds
- Combat weight: 57,544 pounds
- Maximum speed: 65 kph
- Maximum cruising range: 640 km

- Ordnance options: All current and future MFOM rockets and missiles

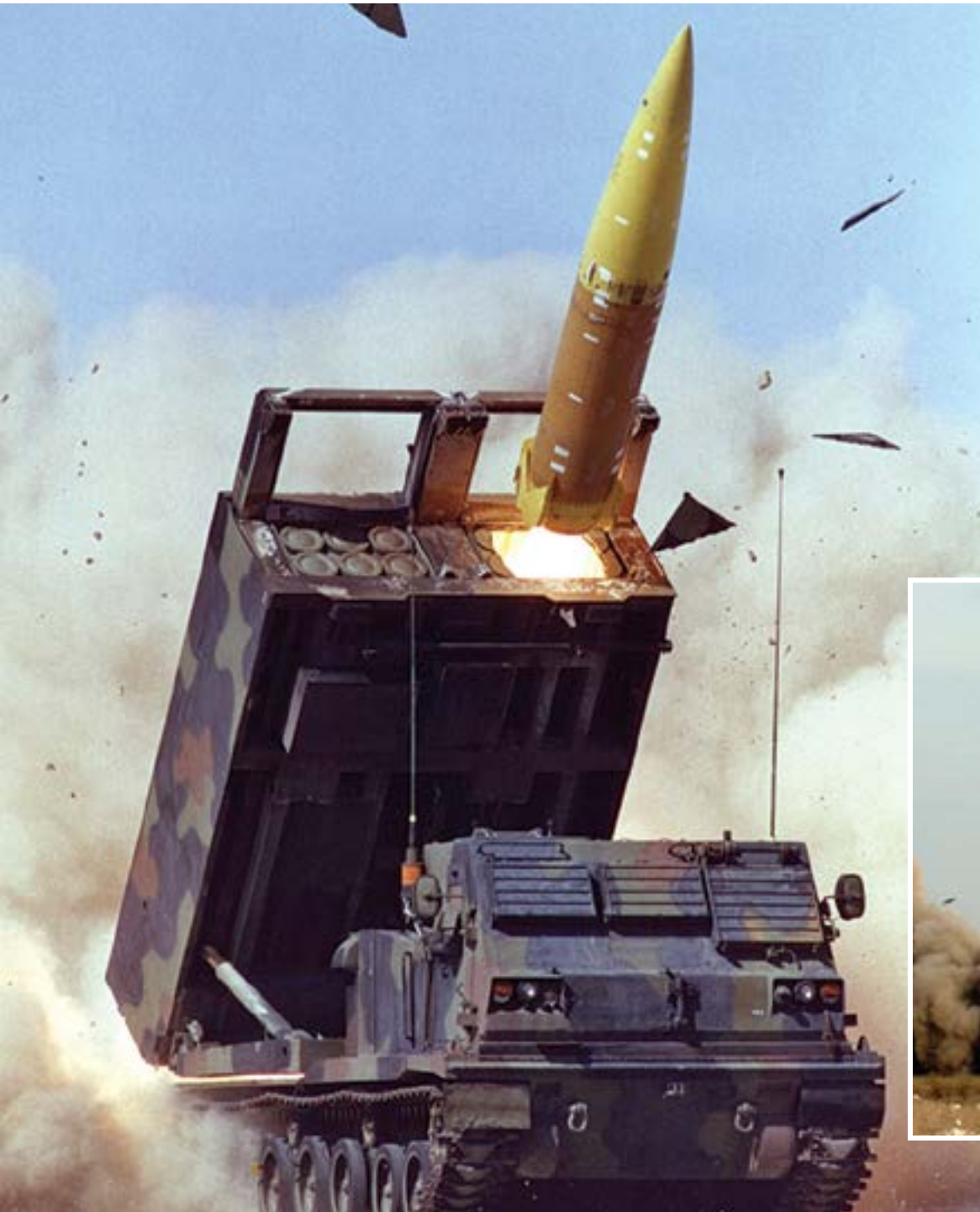
## PROGRAM STATUS

- **1QFY17:** Army instructs Project Manager to develop expansion plan
- **3QFY17:** 16 MLRS launchers – European Deterrence Initiative (EDI)
- **1QFY18:** 16 MLRS launchers – EDI
- **3QFY18:** Approved Fleet Expansion Acquisition Plan
- **4QFY18:**
  - Release Fleet Expansion Request for Proposal (Sole Source)
  - Improved Armored Cab Production Contract Award

## PROJECTED ACTIVITIES

- **3QFY19:** Production Contract Award – Fleet Expansion
- **4QFY21:** Production start – Common Fire Control System
- **1QFY22:** M270A2 First Unit Equipped

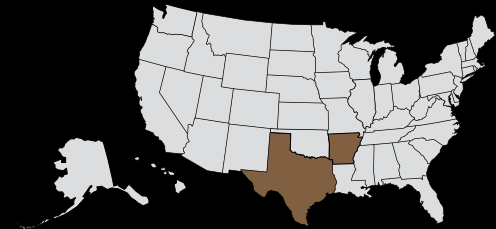




## MLRS — M270A1

**FOREIGN MILITARY SALES**  
Procurement activities underway

**CONTRACTORS**  
Lockheed Martin (Grand Prairie, TX; Camden, AR)



# Paladin Family of Vehicles (FOV) – M109A6 Paladin/M992A2 FAASV/M109A7 SPH/M992A3 CAT and Extended Range Cannon Artillery (ERCA)

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

### Production & Deployment

Operations & Support

## DESCRIPTION

The M109A6 Paladin 155 mm along with the M992A2 Field Artillery Ammunition Supply Vehicle (FAASV) provides the primary indirect-fire support to Armored Brigade Combat Teams (ABCT), Infantry Brigade Combat Teams and Stryker Brigade Combat Teams. Like the earlier M109 models, the M109A6 Paladin is a fully tracked, armored vehicle. The M109A6 Paladin configuration was achieved through modifications to earlier-built M109A2 and A3 vehicle hulls and the introduction of an entirely new cab and cannon assembly.

The M109A7 Self-Propelled Howitzer (SPH) and M992A3 Carrier Ammunition Tracked (CAT), formerly known as the Paladin Integrated Management (PIM) program, will replace the current M109A6 Paladin and the M992A2 FAASV respectively starting in Fiscal Year 2018.

The M109A7 SPH and M992A3 CAT comprise a modernization effort to improve size, weight, power, cooling, readiness, force protection and survivability. They increase M109A6 Paladin and the M992A2 FAASV platforms' sustainability through 2050. The platforms will also be fitted with Blue Force Tracker capability to ensure situational awareness with other friendly forces. The program has leveraged Bradley commonality for key components – engine, transmission, final drive and suspension – in a new hull. 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 utilizing a 600-volt onboard electrical system in the existing cab and cannon assembly.

Extended Range Cannon Artillery (ERCA) uses the existing M109A7 PIM chassis and modernizes the vehicle above the turret ring to increase range and rate of fire in coordination with ammunition upgrades. Project Manager Combat Ammunition

Systems 155 mm ammo programs are critical to achieving range and lethality goals. Programs remain in sync via Howitzer configuration steering boards.

## BENEFIT TO THE SOLDIER

These upgrades and better communications technology will significantly improve the warfighter's battlespace awareness and reduce the logistics footprint within the ABCT. Once delivered to the field, the M109A7 SPH and M992A3 CAT will give ABCT commanders a more capable and sustainable vehicle, providing them with increased confidence in their artillery fleet.

ERCA brings an all new or modified cab, extended range, increased rate of fire and improved ammunition stowage and handling. Benefits include regained lethality overmatch; a demonstrated range of 70-plus km; 300 percent improvement in area coverage for 155 mm; 30 percent increased range for legacy ammo and improved breech reliability.

## PROGRAM STATUS

### M109 FOV:

- **1QFY18:** FY17 Production Contract Award (base and three options)
- **2QFY18:**
  - Initial Operational Test & Evaluation (IOT&E)
  - Technical Manual authenticated
- **3QFY18:** M109A7/M992A3 First Unit Equipped (FUE), 1st Battalion (BN), 5th Field Artillery, 1st Infantry Division. IOT&E BN FUE

### ERCA:

- **FY18-FY19:** Cannon, Breech, XM1113 and Stub Case Development and Demonstration

- **3QFY18:** Yuma Proving Ground Demo Range Test conducted
- **4QFY18:** Materiel Development Decision

### PROJECTED ACTIVITIES

#### M109 FOV:

- **4QFY18:**
  - Full Rate Production (FRP) Decision
  - FUE
  - FRP Contract Award

#### ERCA:

- **4QFY19:** Vehicle (Increment 1) Technology Readiness Level 6 Demonstration
- **3QFY20:** Level 2 Vehicle Technical Data Package Delivery
- **2QFY21:** Prototype build begins
- **2QFY23:** Begin Fielding Increment
- **2QFY23:** Begin Fielding Increment

### SPECIFICATIONS

	M109A6	M109A7	M992A2	M992A3
<b>Crew</b>	4	4	4	4
<b>Combat Loaded Weight (Tons)</b>	34.25	39	29.26	36
<b>On-board Ammunition (Rounds)</b>	39	42	95	95
<b>Rate of Fire</b>	4 rounds/minute for first 3 minutes; 1 round/minute sustained	4 rounds/minute for first 3 minutes; 1 round/minute sustained	4 rounds/minute for first 3 minutes; 1 round/minute sustained	4 rounds/minute for first 3 minutes; 1 round/minute sustained
<b>Maximum Range</b>	High-Explosive/Rocket Assisted Projectile, 22 km/30 km	High-Explosive/Rocket Assisted Projectile, 22 km/30 km	High-Explosive/Rocket Assisted Projectile, 22 km/30 km	High-Explosive/Rocket Assisted Projectile, 22 km/30 km
<b>Cruising Range (Miles)</b>	180	180	180	180
<b>Fire Support Network</b>	Paladin Digital Fire Control System software supports Fire Support Network	Paladin Digital Fire Control System software supports Fire Support Network	Paladin Digital Fire Control System software supports Fire Support Network	Paladin Digital Fire Control System software supports Fire Support Network

# Paladin FOV and ERCA

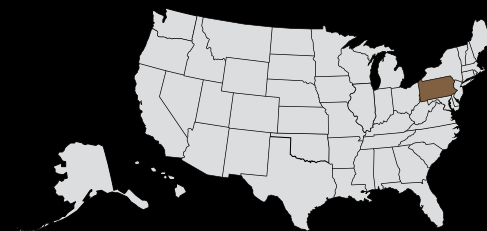
### FOREIGN MILITARY SALES

Austria, Bahrain, Brazil, Chile, Denmark, Egypt, Ethiopia, Germany, Iran, Iraq, Israel, Jordan, Lebanon, Malaysia, Morocco, Netherlands, Norway, Pakistan, Portugal, Saudi Arabia, Spain, Switzerland, Taiwan, Thailand and United Kingdom

### CONTRACTORS

**M109 FOV Contractors:** BAE Systems (York, PA)

**ERCA Contractors:** TBD



# Palletized Load System (PLS) and PLS Extended Service Program (ESP)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Palletized Load System (PLS) A1 is a 5-axle, 10-wheel drive tactical truck with a companion trailer (M1076A1), each with a demountable cargo bed (flat rack). Both the truck and the trailer are capable of carrying up to 36,250 pounds of payload (which includes the weight of the flat rack) on one of several different types of flat racks, containers or modules.

The PLSA1 has an engine with greater capacity than the A0, independent front suspension, and an A-cab/B-kit common with the Heavy Expanded Mobility Tactical Truck (HEMTT) A4. Additionally, by North Atlantic Treaty Organization (NATO) agreement, the PLSA1 shall be able to transport other NATO flat racks up to a payload of 36,250 pounds.

A self-contained hydraulic Load Handling System (LHS) is mounted on the PLSA1 truck chassis. The PLSA1 truck has two mission-oriented configurations: the M1074A1 and M1075A1. The M1074A1 is equipped with a variable reach Material Handling Crane (MHC) to support forward deployed artillery units. The M1075A1 does not have the MHC. It is used in conjunction with the M1076A1 trailer in support of transportation line haul missions.

The PLSA1 truck is used to load and unload M1076A1 PLS trailers. The two principal flat racks are the M1077A1 series flat rack and the M3/M3A1 series flat rack, more commonly known as the Container Roll-In/Roll-Out Platform (CROP). Although these have the same cargo payload capability, the M1077A1's dimensions are slightly longer and wider than the M3/M3A1, making it ideal to carry 20-foot International Organization for Standardization (ISO) containers or modules. The M3/M3A1 is designed to fit inside of a 20-foot ISO container. The Enhanced Container Handling Unit (E-CHU) enables the M1075A1 to directly load 20-foot ISO containers directly onto the vehicle

without the use of a M1077A1 flat rack. The PLS Trailer A1 (M1076A1) complements E-CHU equipped PLSA1s with the ability to receive and secure the 20-foot ISO container from the vehicle.

## BENEFIT TO THE SOLDIER

The PLSA1 assists commanders by enabling more agile, flexible and full-spectrum movement of loaded flat rack/CROP/ISO and other similar sized equipment across the range of military operations throughout the battlefield. The capability to transport critical supplies at highway speeds between ports and forward staging areas will provide ground commanders flexibility to respond to rapidly shifting operations.

## SPECIFICATIONS

- Palletized Load System A1 (M1074A1 w/MHC, M1075A1 without MHC):
  - Size: 10x10 (10-wheeled vehicle with 10-wheel drive) truck with integrated LHS
  - Gross Vehicle Weight (A-Kit/B-Kit):
    - M1074A1 89,880 pounds/94,910 pounds
    - M1075A1 84,500 pounds/89,624 pounds
  - Gross Combination Weight Rating (A-Kit + trailer, B-Kit + trailer):
    - M1074A1 + M1076A1 trailer 139,805 pounds/144,835 pounds
    - M1075A1 + M1076A1 trailer 134,425 pounds/139,549 pounds
  - Engine: Caterpillar C-15 ACERT Diesel Engine, 600 hp
  - Transmission: Allison HD4500SP (6-speed automatic)
  - LED Headlights
  - Maintenance and serviceability improvements
  - Integrated cab armor protection with scalable armor protection (B-Kit, C-Kit armor protection) for increased survivability (common with the HEMTTA4 cab)

- Improved heater and air conditioning system
- TAK-4 independent front suspension with coil springs, which provides improved ride and steering over the base PLS
- New antilock brakes system with larger brake chambers works in conjunction with a revised central tire inflation system, traction control and driveline lockup systems for improved braking (safety) and off-road performance
- Maximum speed: 60 mph at gross combined vehicle weight on flat terrain

### PROGRAM STATUS

- **FY16-FY18:** Continue to produce and field Extended Service Program (ESP) PLSs to Active Army, National Guard, Reserve and Preposition Stocks. The PLS ESP/RECAP is a recapitalization program that converts high-mileage, older-version PLS trucks into the current A1 production configuration. Modernizing the fleet to one model reduces the logistics footprint and operational and sustainment costs of maintaining older vehicles.

### PROJECTED ACTIVITIES

- **FY19-FY23:** Acquisition courses of action are being reviewed for ongoing modernization alternatives



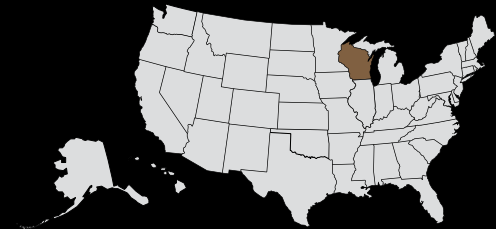
# PLS

## FOREIGN MILITARY SALES

Worldwide sales

## CONTRACTORS

Oshkosh (Oshkosh, WI)



# PATRIOT Advanced Capability-3 (PAC-3)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Phased Array Tracking Radar to Intercept of Target (PATRIOT) Missile protects ground forces and critical assets at all echelons from advanced aircraft, cruise missiles and tactical ballistic missiles (TBM). The PATRIOT Advanced Capability – 3 (PAC-3) is the Army's premier guided air and missile defense (AMD) system providing highly reactive hit-to-kill capability in both range and altitude while operating in all environments.

The combat element of the PATRIOT system is the fire unit, primarily consisting of a radar set (RS), engagement control station (ECS) and launching stations (LS). The RS provides airspace surveillance, target detection, discrimination, identification, classification, simultaneous tracking of targets, missile guidance and engagement support. The LS performs transport and missile launch functions and is remotely operated from the ECS, which provides command and control. The LS has a load-out capacity of between 12 and 16 PAC-3 missiles depending on configuration. The PAC-3 missile, initially fielded in 2001, introduced hit-to-kill technology for greater lethality against TBM, cruise missiles and aircraft. The combination of a highly responsive airframe and attitude control motors generates an angle-of-attack that would not be achievable with actuator-driven aerodynamic control surfaces alone.

The PAC-3 Missile Segment Enhancement (PAC-3 MSE), fielded in 2015, represents the next generation PAC-3 missile and provides expanded battlespace performance against evolving threats. The PAC-3 MSE improves upon the original PAC-3 capability with a higher performance solid rocket motor, modified lethality enhancer, more responsive control surfaces, upgraded guidance software and insensitive munitions improvements.

PAC-3 milestone authority was assigned to the Army in 2004. The Army Acquisition Executive is the Milestone Decision Authority for the PAC-3 and PAC-3 MSE programs. The Army continues to modernize PATRIOT through phased efforts to maintain and improve system capabilities in the complex threat environment. This modernization provides greater resilience against advanced threats and leverages the enlarged engagement area afforded by the PAC-3 MSE interceptor. PATRIOT is transitioning to the Integrated Air and Missile Defense Battle Command System networked architecture.

## BENEFIT TO THE SOLDIER

PATRIOT is a combat-proven ground-based AMD system that is providing critical AMD protection to the warfighter in 17 countries. Fourteen partner nations have acquired or deployed the PATRIOT System in support of their AMD requirements.

## SPECIFICATIONS

- Advanced multifunction radar
- Engagement control operations
- Launcher capable of remote operations
- Deployed by fire units organized within a battalion
- Supported by ancillary communications and maintenance ground support equipment
- Designed to defend against current and emerging threats

## PROGRAM STATUS

- **1QFY16:** PAC-3 MSE First Unit Equipped
- **4QFY16:** PAC-3 MSE Initial Operational Capability
- **1QFY18:** PAC-3 MSE Initial Operational Test & Evaluation
- **3QFY18:** PAC-3 MSE Full Rate Production (FRP) Army System Acquisition Review Council
- **FY18:** Post-Deployment Build-8 Development Testing, Software Capability Fielding and Hardware Upgrades (Radar Digital Processor)

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - PAC-3 MSE capability integration within the Integrated Air and Missile Defense Battle Command System network architecture
  - Execute PAC-3 MSE FRP
  - Significant Foreign Military Sales interest in PAC-3 MSE



## PAC-3

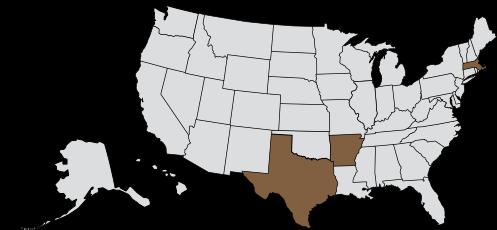
### FOREIGN MILITARY SALES

**Current PAC-3 International Partners:** Germany, Japan, Korea, Kuwait, Netherlands, Poland, Qatar, Romania, Saudi Arabia, Taiwan and United Arab Emirates

### CONTRACTORS

**Missile Program Management Team:** Lockheed Martin (Dallas, TX)

**Missile Assembly:** Lockheed Martin (Camden, AR)  
**System Integration/Ground Equipment:** Raytheon (Andover, MA)



# Precision Strike Missile (PrSM)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Precision Strike Missile (PrSM) will be a surface-to-surface, all weather, precision-strike guided missile fired from the M270A1 Multiple Launch Rocket System (MLRS) and the M142 High Mobility Artillery Rocket System (HIMARS). The baseline missile, which will be developed and fielded to engage a wide variety of targets at ranges up to 499 km, will emphasize imprecisely located area and point targets. Primary emphasis for follow-on spirals will be on increased range, lethality and engagement of time sensitive, moving, hardened and fleeting targets.

## BENEFIT TO THE SOLDIER

The PrSM will destroy/neutralize/suppress targets at ranges from 70-400-plus km using missile-delivered indirect precision fires. PrSM provides field artillery units with long range and deep strike capability while supporting brigade, division, corps, Army, theater, joint/coalition forces and Marine Air-Ground Task Forces in full, limited or expeditionary operations. PrSM will replace the existing aged inventory of non-Insensitive Munitions and Cluster Munition policy compliant Army Tactical Missile Systems (ATACMS).

## SPECIFICATIONS

- Replaces ATACMS and doubles rate-of-fire with two missiles per launch pod
- 400-plus km ballistic missile with a cluster munition compliant payload
- Attacks critical and time-sensitive area and point targets
- Maintains or improves accuracy in partial Global Positioning System (GPS)-denied environments; plan for M-Code GPS integration
- Insensitive Munition compliant system
- Launcher compatibility with M270A1 MLRS and M142 HIMARS

- Technology upgrades via Open Systems Architecture
- Growth capabilities for follow-on spirals
- Includes Cyber Security requirements

## PROGRAM STATUS

- **3QFY16:** Army Requirements Oversight Council approved the draft Capability Development Document
- **1QFY17:** Extended Range Missile Technology Demonstration complete
- **2QFY17:** Milestone A Decision Review
- **3QFY17:**
  - Technology Maturation and Risk Reduction Contract Award (Competitive Prototype Development)
  - System Requirement Review - Raytheon (August); Lockheed (September)
- **2QFY18:** System Functional Review - Raytheon (December 2017); Lockheed (January 2018)

## PROJECTED ACTIVITIES

- **1QFY19:** Preliminary Design Review
- **4QFY19:** Prototype Demonstration Flight Tests
- **2QFY21:** Critical Design Review
- **3QFY21:** Milestone B
- **FY23:** Early Operational Capability



# PrSM

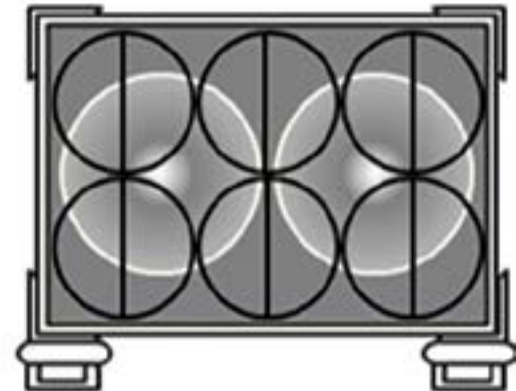
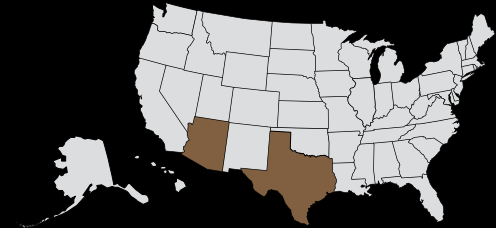
## FOREIGN MILITARY SALES

There is potential for future cooperative development and FMS procurement.

## CONTRACTORS

Raytheon Missile Systems (Tucson, AZ)

Lockheed Martin (Grand Prairie, TX)



**Concept Designs  
Missile Packaging and End Views**

# Shadow Tactical Unmanned Aircraft System (TUAS) – RQ-7Bv2

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

### Production & Deployment

Operations & Support

## DESCRIPTION

The RQ-7Bv2 Shadow Tactical Unmanned Aircraft System (TUAS) provides reconnaissance, surveillance, target acquisition and force protection for the Brigade Combat Team (BCT) in near-real-time during day, night and limited adverse weather conditions. The system is compatible with the All Source Analysis System, Advanced Field Artillery Tactical Data System, Joint Surveillance Target Attack Radar System Common Ground Station, Joint Technical Architecture – Army, and the Defense Information Infrastructure Common Operating Environment and the Universal Ground Control Station (UGCS). The RQ-7Bv2 Shadow can be transported by six Air Force C-130 aircraft.

The RQ-7Bv2 Shadow configuration, fielded in platoon sets, consists of:

- Four air vehicles with day and night electro-optical and infrared (IR) with laser designator and IR illuminator payloads
- Two UGCS on High Mobility Multipurpose Wheeled Vehicles
- Four One System Remote Video Transceivers
- One hydraulic launcher
- Two ground data terminals
- Associated trucks, trailers and support equipment

Shadow platoons are organic to the BCT. The Soldier platoon consists of a platoon leader, platoon sergeant, unmanned aerial vehicle warrant officer, 12 air vehicle operators and mission payload operators, four electronic warfare repair personnel, and three engine mechanics supporting launch and recovery. The Maintenance Section Multifunctional is manned by Soldiers who also transport spares and provide maintenance support. The Mobile Maintenance Facility is manned by contractor personnel located with the Shadow platoon to provide logistics support to include off-system support and maintenance-by-repair.

The Shadow also has an early entry configuration of 15 Soldiers, one Ground Control Station, the air vehicle transport High Mobility Multipurpose Wheeled Vehicle and the launcher trailer, which can be transported in three C-130s. All components can be slung under a CH-47 or CH-53 helicopter for transport.

## BENEFIT TO THE SOLDIER

The RQ-7Bv2 provides Army BCT, Aviation Brigades and Special Operation Units dedicated near-real-time reconnaissance, surveillance and target acquisition; intelligence; battle damage assessment; and Manned-Unmanned Teaming (MUM-T) capability. The RQ-7Bv2, teamed with the AH-64D/E, provides support and situational awareness to both the Soldier on the ground and warfighting leadership as they carry out operations in support of U.S. national interests.

## SPECIFICATIONS

- Wingspan: 20 feet
- Gross takeoff weight: 440-plus pounds
- Payload capacity: 60 pounds
- Endurance: 8-plus hours on-station at a distance of 50 km
- Capable of cooperative engagements with AH-64E Apache for MUM-T

## PROGRAM STATUS

- **Current:** In Production and Deployment with the V2 configuration; flown more than 960,000 hours, 90 percent in combat

## PROJECTED ACTIVITIES

- **FY18-FY19:** Complete Fielding of the RQ-7BV2 systems to the Active Army and National Guard



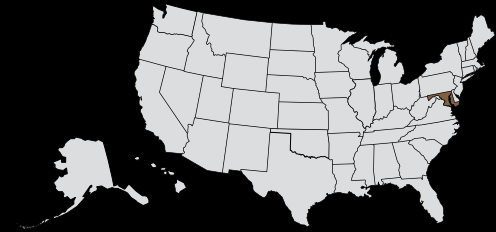
## Shadow — RQ-7Bv2

### FOREIGN MILITARY SALES

Australia

### CONTRACTORS

Shadow System: AAI Corp. (Hunt Valley, MD)



# Stryker Family of Vehicles (FOV)

PEO Ground Combat Systems | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The National Military Strategy requires an Army that is rapidly deployable and strategically responsive across the full spectrum of operations. The Stryker Brigade Combat Team (SBCT) encompasses capabilities and characteristics that are needed but were not available until the first SBCT was declared operationally capable. As the primary combat and combat support platform of the SBCT, the Stryker Family of Vehicles fulfills an immediate requirement for a strategically deployable (C-130/C-17/C-5) brigade capable of rapid movement worldwide in a combat-ready configuration.

The Stryker Family of Vehicles is built on a common chassis, with some variants having different Mission Equipment Packages. There are 18 variants; 10 flat-bottom variants that include the Infantry Carrier Vehicle (ICV), Mobile Gun System (MGS), Reconnaissance Vehicle (RV), Mortar Carrier (MC), Commander's Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Anti-tank Guided Missile (ATGM) Vehicle and Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV); seven Double-V-Hull (DVH) variants for the following; ICV, CV, MEV, MC, ATGM, FSV and ESV, and an additional configuration of a modified ICV platform integrating a 30 mm cannon.

The Stryker program leverages non-developmental items with common subsystems and components to allow rapid acquisition and fielding. Stryker integrates government-furnished matériel subsystems as required and stresses performance and commonality to reduce the logistics footprint and minimize costs. After combat use, the DVH was developed to increase survivability. The 30 mm cannon was integrated on the Stryker platform to meet emerging operational requirements and to improve lethality survivability. With the integration of the DVH A1 Engineering Change Proposal (DVHA1 ECP) beginning in the

third quarter of Fiscal Year 2016, providing greater horsepower and electrical output, along with a more robust suspension and in-vehicle network, the Stryker will be an even more capable platform.

## BENEFIT TO THE SOLDIER

Stryker vehicles provide the warfighter with a reliable, combat-tested platform that includes significant survivability and capability enhancements since the original fielding in 2002.

## SPECIFICATIONS

- Built on a common chassis, with the exception of MGS and NBCRV, to reduce logistical footprint
- Certain variants, excluding the MEV, ATGM, FSV, RV, MC and MGS, are armed with Remote Weapon Station supporting M2 .50 Caliber machine gun or a MK19 grenade launcher
- Also integrated is a 30 mm cannon (30 x 173 mm) in an unmanned turret
- Top speed: 60 mph
- Range: 330 miles
- Either 4x8 or 8x8 capability with run-flat tires, central tire inflation system and vehicle height management system

## PROGRAM STATUS

- **3QFY16:** Army begins Production of DVHA1 ECP Strykers for 4th DVH Brigade
- **4QFY16:** Army begins Production of 83 modified Strykers with 30 mm cannon
- **2QFY17:** Begin Fielding of 3rd DVH SBCT; Army decision approving lethality upgrades for Stryker fleet (Modified Improved Target Acquisition System/ATGM, Common Remotely Operated Weapons System Javelin (CROWS-J))

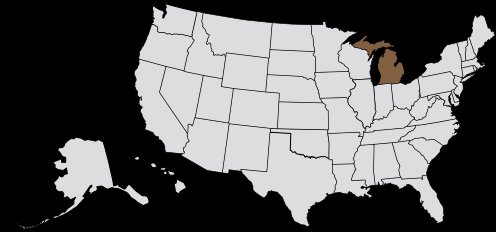
# Stryker FOV

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Dynamics Land Systems (Sterling Heights, MI)



- **3QFY17:** Army completes Fielding of 3rd DVH SBCT; Army begins fielding of 2nd National Guard SBCT (81st Washington Army National Guard)
- **1QFY18:** First delivery of Stryker DVHA1 ECP
- **2QFY18:** Army decision to replace remaining flat bottom Stryker SBCTs with DVHA1 ECPs
- **3QFY18:**
  - Army begins Fielding Stryker ICVs modified with 30 mm cannon
  - Army completes Production of 83 modified Strykers with 30 mm cannon
- **4QFY18:** Army begins CROWS-J retrofits

## PROJECTED ACTIVITIES

- **1QFY19:** Army completes Fielding of modified Stryker ICVs with 30 mm cannon
- **2QFY19:** Army decision on Stryker fleet lethality
- **4QFY20:** Schedule Fielding of 4th DVH SBCT (DVHA1 ECP)
- **2QFY21:** Army decision on path forward for first three DVH SBCTs
- **4QFY23:** Scheduled Fielding completed for three of the five DVHA1 SBCTs



# Tactical Mission Command (TMC)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Tactical Mission Command (TMC) is a suite of products and services that provide commanders and staff with planning tools, common operational picture management, and other maneuver function tools. The Command Post Computing Environment (CP CE), under the direction of Product Manager TMC, provides a common framework (Common Infrastructure/Common Services) upon which future warfighter capabilities can be built.

CP CE is one of six computing environments under the Common Operating Environment (COE). CP CE provides command and control and situational awareness capabilities development at echelons that span from Army service component commands to company level. CP CE will be the most critical computing environment developed to support command posts in combat operations. CP CE will field a Commercial Off-The-Shelf hardware server and related components. The CP CE software will reside on converged Tactical Server Infrastructure v2 server stacks.

## BENEFIT TO THE SOLDIER

TMC helps provide commanders with a consolidated readiness picture on a singular workstation, lessens the logistics trail for Soldiers and reduces the training burden.

## SPECIFICATIONS

- Army's CP CE will consolidate current mission command systems and applications into a single user interface and allow commanders to see the same common operational picture and better share data throughout the unit.
- CP CE will collapse legacy, stove-piped systems to create an improved user experience, reduce the training burden on Soldiers and enable the integration of new capabilities.
- CP CE will allow the Army to divest four stand-alone systems: Command Post of the Future, Command Web,

Tactical Ground Reporting (TIGR) and Global Command and Control System-Army (GCCS-A).

- Core CP CE common infrastructure functions will provide chat, a standard map, message centers and an extensible data model. These core functions will serve as the foundation for every warfighting application and will be available to every Soldier in the CP, regardless of military occupational specialty.

## PROGRAM STATUS

- **2QFY16:** Command Web Operational Test
- **FY16-FY18:** Continued Fielding of TMC software and hardware

## PROJECTED ACTIVITIES

- **4QFY19:** TMC full deployment and transition to Sustainment

# TMC

## FOREIGN MILITARY SALES

Canada

## CONTRACTORS

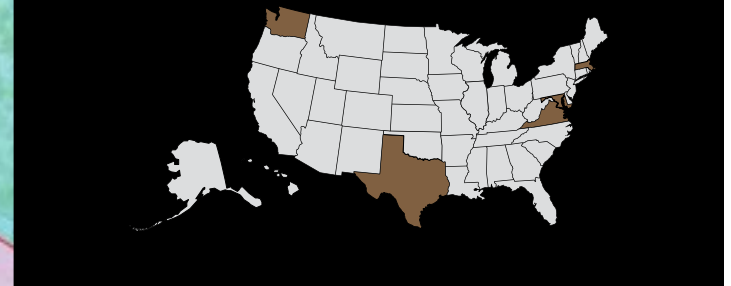
General Dynamics (Taunton, MA)

Microsoft (Redmond, WA)

Bowhead Logistics Solutions (Alexandria, VA)

General Dynamics Information Technology (Aberdeen Proving Ground, MD)

Southeastern Computer Consultants, Inc. (Austin, TX)



# Tactical Network Transport

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Tactical Network Transport equipment delivers seamless, assured mission command, advanced communications and a comprehensive common operating picture in support of joint, coalition and civil missions worldwide. As part of the Army's tactical network, Tactical Network Transport establishes an at-the-halt network backbone that provides the full range of data, voice and video communications to command posts at the battalion and above echelons, using both line-of-sight (terrestrial) and beyond-line-of-sight (satellite/tropospheric) communications nodes.

## BENEFIT TO THE SOLDIER

At-the-halt capability has been fully fielded since 2012 to more than 90 percent of the Army and meets the Army's at-the-halt operational requirements. To support expanding network requirements and improve the readiness of today's operational force, the Army continues to implement upgrades to the at-the-halt capability that increase and optimize bandwidth, improve capability and interoperability while hardening cyber security.

## SPECIFICATIONS

- Three types of transportable network nodes provide high-speed wide area network capability for secure voice, video and data exchange
  - Tactical Hub Node (THN) supports division headquarters
  - Joint Network Node (JNN) supports brigade-level headquarters
  - Battalion Command Post Node (BnCPN) supports battalion-level headquarters.
- Regional Hub Node, a fourth type of node, is a fixed installation equivalent to three THNs used to support theater-level operations.

- Satellite Transportable Terminal a highly transportable and mobile satellite system, operates in conjunction with the JNN and BnCPN. It is designed to establish secure voice, video and data communications virtually anytime and anywhere.

## PROGRAM STATUS

- **FY18:** Conclusion of fielding effort of End of Life Tech Refresh against Commercial Off-The-Shelf (COTS) obsolescence

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Fielding for next baseline of End of Life Tech Refresh against COTS obsolescence
  - Procuring and Fielding wireless capability to Brigade, Expeditionary Signal Battalion and Above
  - Fielding coalition local area network capability and Top Secret Enclave to selected units



# Tactical Network Transport

## FOREIGN MILITARY SALES

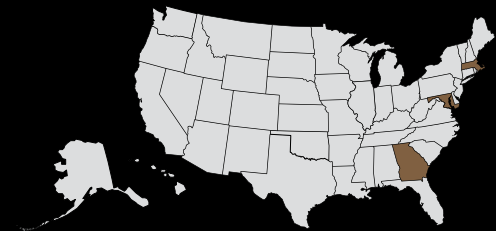
None

## CONTRACTORS

**Increment 1B Colorless Core Kits Production and Integration:** General Dynamics Mission Systems (Taunton, MA)

**Transportable Terminals:** General Dynamics Mission Systems (Duluth, GA)

**PM Support:** Engineering Solutions and Products (Aberdeen, MD); JANUS (Aberdeen, MD)



# Tactical Network Transport On-the-Move

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Tactical Network Transport On-the-Move delivers a mobile, resilient, redundant tactical communications network. Combat vehicles integrated with mobile tactical network transport equipment provide robust network communications, mission command and situational awareness both on-the-move crossing austere battlefield locations and at-the-halt in stationary command posts.

## BENEFIT TO THE SOLDIER

Combat vehicles integrated with Tactical Network Transport On-the-Move communications, mission command and situational awareness allow commanders to lead from anywhere on the battlefield. Tactical Network Transport capability enables Soldiers operating in remote and challenging terrain to maintain voice, video and data communications, with connectivity rivaling that found in a stationary command post.

## SPECIFICATIONS

- Tactical Communications Node (TCN) and Tactical Communications Node-Lite (TCN-L) provide the principal network backbone element and support command post operations. While at-the halt, the TCN is equipped with a 10 meter, extendable mast to improve line-of-sight connectivity and larger satellite assemblage for high throughput.
- Point of Presence (PoP), installed on select combat platforms at division, brigade and battalion echelons, enables mobile mission command by providing on-the-move network connectivity, both line-of-sight and beyond-line-of-sight.
- Soldier Network Extension (SNE), installed on select vehicles to provide on-the-move network communications, extends the network. Using its on-the-move satellite communication systems, the SNE can also be used to heal and extend remote tactical radio networks.

- Vehicle Wireless Package (VWP), a communications package, provides remote connectivity to a TCN via a Local Access Waveform for command and control vehicles during at-the-halt and on-the move operations.
- Network Operations and Security Center (NOSC) and NOSC-Lite (NOSC-L) provide network management and enhanced tactical network planning, administration, monitoring and response capabilities.

## PROGRAM STATUS

- **FY16-FY18:**
  - Fielding to Active Component Infantry and Stryker Brigade Combat Teams (BCTs) and division headquarters (HQs)
  - Successful development of TCN-L and NOSC-L for Fielding to Infantry BCTs
  - Decision to curtail procurement after FY18

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Complete Fielding to Active Army Infantry and Stryker BCTs and division HQs

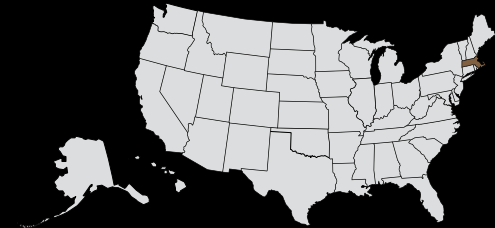
# Tactical Network Transport

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Dynamics (Taunton, MA)



# Tube-Launched, Optically Tracked, Wireless-Guided (TOW) Missiles

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

### Production & Deployment

Operations & Support

## DESCRIPTION

The Close Combat Missile System – Heavy (CCMS-H) TOW (Tube-Launched, Optically Tracked, Wireless-Guided and Tube-Launched, Optically Tracked, Wire-Guided) Missile is a heavy anti-tank/precision assault weapon system consisting of a launcher and a missile. The gunner defines the aim point by maintaining the sight crosshairs on the target. The launcher automatically steers the missile along the line-of-sight toward the aim point via a one-way radio frequency link, which links the launcher and missile.

TOW missiles are employed on the High Mobility Multipurpose Wheeled Vehicle (HMMWV)-mounted Improved Target Acquisition System, Stryker Anti-Tank Guided Missile (ATGM) Vehicles, and Bradley Fighting Vehicles (A2/A2ODS/A2OIF/A3) within the Infantry, Stryker and Armor Brigade Combat Teams, respectively. TOW missiles are also employed on the Marine HMMWV-mounted Saber, LAV-ATGM Vehicle and AH1W Cobra attack helicopter (wired variants only). TOW is also employed by allied nations on a variety of ground and airborne platforms (wired variants only).

The TOW 2B Aero is the most modern and capable missile in the TOW family, with an extended maximum range to 4,500 meters. The TOW 2B Aero defeats all threat armor systems. The TOW 2B Aero Gen2 also incorporates an advanced counteractive protection system capability. The TOW 2B flies over the target, detects the target and fires two downward-directed, explosively formed penetrator warheads into the target.

The TOW Bunker Buster (BB) is optimized for performance against urban structures, earthen bunkers, field fortifications and light-skinned armor threats. The TOW BB has an impact

sensor located in the main charge and optimizes warhead effectiveness. The TOW BB can defeat double reinforced concrete walls at range.

## BENEFIT TO THE SOLDIER

The TOW Missile provides the warfighter with precise, lethal, direct fires against main battle tanks, field fortifications, heavy weapons teams, snipers and other targets of opportunity while minimizing collateral damage.

## SPECIFICATIONS

- Weight: 49.8 pounds (65 pounds encased)
- Length: 49 inches
- Diameter: 6 inches (8.6 inches encased)
- Range: 4,500 meters (TOW 2B Aero)

## PROGRAM STATUS

- **FY16:**
  - Accepted 1,001 missiles for the United States in accordance with the FY06-FY11 multiyear contract delivery schedule
  - Awarded the Program Year Five funding on the FY12-FY16 TOW multiyear contract
- **FY17:** Awarded the FY21 Multiyear Production Contract
- **FY18:** Awarded Program Year Two of the FY17-FY21 Multiyear Production Contract

## PROJECTED ACTIVITIES

- **FY19-FY23:** The TOW Obsolescence and Safety Engineering Change will improve gunner safety, address parts obsolescence and improve production

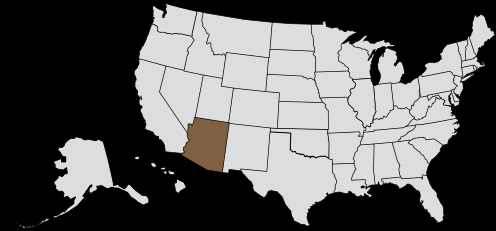
# TOW Missiles

## FOREIGN MILITARY SALES


The TOW weapon system has been sold to more than 43 allied nations over the life of the system.

## CONTRACTORS

Raytheon Missile Systems (Tucson, AZ)







**WEAPON SYSTEMS**  
**ACAT II**

**Listed in alphabetical order**

# Advanced Field Artillery Tactical Data System (AFATDS)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Advanced Field Artillery Tactical Data System (AFATDS) provides fully automated support for planning, coordinating, controlling and executing fires and effects such as mortars, field artillery cannons, rockets and missiles, close air support, attack aviation and naval surface fire-support systems. AFATDS interoperates and integrates with more than 80 different battlefield systems, including Navy and Air Force command and control weapon systems and German, French, Turkish and Italian fire-support systems.

AFATDS fuses the essential situational awareness data, intelligence information and targeting data in near real-time to make effective targeting decisions that align with Mission Command guidance and priorities. It pairs targets to weapons to provide optimum use of fire-support assets and timely execution of fire missions.

## BENEFIT TO THE SOLDIER

AFATDS provides the Army, Navy and Marine Corps with automated fire-support command, control and communications. It is used to plan, execute and deliver lethal and nonlethal effects. AFATDS also provides joint/coalition situational awareness for fires execution and mission management.

## SPECIFICATIONS

- Windows software that runs on ruggedized laptop computer

## PROGRAM STATUS

- **1QFY16:** AFATDS 7.0 Software Modernization Request for Proposal release
- **2QFY17:**
  - AFATDS v6.8.1.1P1 First Unit Equipped
  - AFATDS v6.8.1.1 Fielding
- **3QFY17:** AFATDS v7.0 Contract re-award

## PROJECTED ACTIVITIES

- **3QFY20:** AFATDS v7.0 Limited Deployment Decision in support of Fielding Decision



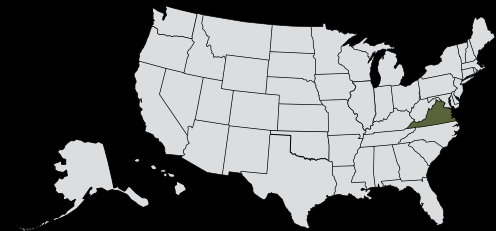
# AFATDS

## FOREIGN MILITARY SALES

Australia, Bahrain, Egypt, Jordan, Portugal, Taiwan and Turkey

## CONTRACTORS

Leidos (Reston, VA)



# Air and Missile Defense Planning and Control System (AMDPCS)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Air and Missile Defense Planning and Control System (AMDPCS) provides an automated command and control system to integrate air and missile defense planning and operations. Planning and operations functions include radar and weapon systems analysis and emplacement locations based on critical and defended asset lists/prioritization. It also supports intelligence preparation of the battlefield, using information collected by internal AMDPCS subsystems; joint collaboration support for the development of airspace control measures utilized throughout the theater of operations; and logistics management activities, to ensure timely ammunition resupply and reduce repair cycle times.

There are two configurations of AMDPCS (AMDPCS-A and AMDPCS-B), which are deployed with Air Defense Artillery (ADA) batteries, battalions, brigades and U.S. Army Air and Missile Defense Command (AAMDC). AMDPCS is the only system in the Army fleet to provide these capabilities.

## BENEFIT TO THE SOLDIER

AMDPCS (AAMDC, brigade, battalion and battery echelons) uses a correlated, real-time joint and coalition air picture, to provide Soldiers with the ability to track aircraft outside their operational area, identify friend or foe platforms, reduce fratricide and assist in integrating defense of the air battlespace. Air Defense Airspace Management (ADAM) (corps, division and Brigade Combat Team echelons) provides maneuver units with collaboration and staff planning capabilities through the use of a correlated air picture, integrated and overlapping radar coverages, external tactical data links needed for the conduct of airspace coordination/airspace management below 10,000 feet, and indirect fires deconfliction.

## SPECIFICATIONS

- AMDPCS/ADAM provide the commander with Secure Internet Protocol Router Network/Non-Secure Internet Protocol Router interfaces; high frequency, ultra high frequency, very high frequency, satellite voice communications; and secure tactical data link interfaces that enable/support tactical ballistic missile early warning and air defense planning/airspace management
- AMDPCS includes shelters, automated data processing equipment, tactical communications, standard vehicles (i.e., M1152 High Mobility Multipurpose Wheeled Vehicle (HMMWV)) and tactical power. It also includes the following software systems for force and engagement operations:
  - Air and Missile Defense Workstation (AMDWS), a staff planning and battlespace situational awareness tool
  - Air Defense System Integrator (ADSI), a joint data link processor and router providing external joint messages
- ADAM is a standard Command Post Platform shelter, mounted on a HMMWV with multiple radios, processors and servers

## PROGRAM STATUS

- **3QFY16:**
  - AMDWS Block V Contract Award (continues Common Operating Environment (COE) interface development and sustains interoperability requirements)
  - Received European Deterrence Initiative (EDI) requirements, increasing production to support the pre-positioning of air defense equipment/capability
- **1QFY17:** ADAM COE for Army Warfighter Assessment (AWA) 17.1
- **2QFY18:**
  - Fielded AMDPCS configurations to 263rd AAMDC (completes four of four AAMDC headquarters)

- Received Headquarters, Department of the Army directed requirement to build four Maneuver Short Range Air Defense (M-SHORAD) battalions (AMDPCS command and control shelters in support of M-SHORAD effort)
- **4QFY18:**
  - ADSI contract award (supports Army, joint and coalition tactical data link interoperability requirements)
  - Fielded AMDPCS shelters to Army Prepositioned Stock in support of EDI

### PROJECTED ACTIVITIES

- **FY19:** Field one AMDPCS-A and one AMDPCS-B to 38th ADA Brigade in Pacific Command
- **1QFY20:** ADAM COE projected for AWA 20.1
- **FY20:** Field one AMDPCS-B to Terminal High Altitude Air Defense (THAAD) Battery 8 and one ADAM to 7th Infantry Division Headquarters
- **FY21:** Field two M-SHORAD battalions to Active Component (AC)
- **FY22:** Field two M-SHORAD battalions to AC
- **FY23:** Field one AMDPCS-B to THAAD Battery 9

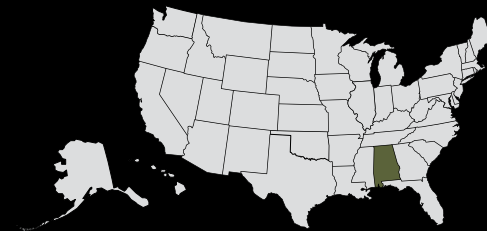
## AMDPCS

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Northrop Grumman (Huntsville, AL)



# Airborne Reconnaissance Low (ARL)

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Airborne Reconnaissance Low-Multifunction (ARL-M), designated EO-5C, is a legacy manned multisensor, day and night, all-weather Aerial Intelligence, Surveillance, Reconnaissance (AISR) system. It consists of a modified De Havilland Canada (DHC)-7 fixed-wing aircraft equipped with Communications Intelligence and Imagery Intelligence (COMINT/IMINT), Ground Moving Target Indicator/Synthetic Aperture Radar and Electro-Optical and Infrared (EO/IR) Full-Motion Video (FMV) capability. Onboard operators control the payloads via open-architecture, multifunction workstations. Intelligence collected can be analyzed and disseminated from the onboard workstations in real time as well as recorded for post-mission analysis.

The Airborne Reconnaissance Low-Enhanced (ARL-E), designated RO-6A, is the Army's newest manned multisensor, day and night, all-weather AISR system. ARL-E consists of a modified DHC-8-Q315 fixed-wing aircraft equipped with a reconfigurable payload with enhanced COMINT and IMINT sensors including long-range Ground and Dismounted Moving Target Indicator/Synthetic Aperture Radar high-definition EO/IR FMV, and Hyperspectral Imagery. The sensors are controlled and operated using onboard Distributed Common Ground Station-Army (DCGS-A) multifunction workstations. Intelligence collected on the ARL-E can be analyzed and disseminated in real time; transmitted via Beyond Line of Sight satellite communication; or stored onboard for post-mission analysis.

The more capable DHC-8-Q315 based ARL-E will replace the ARL-M systems (DHC-7) with the First Unit Equipped in Fiscal Year 2020. By leveraging former Quick Reaction Capability DHC-8 programs the Army has capitalized on the reutilization of previous Army investments, non-recurring engineering, improved airworthiness, and improved system availability for

the Army ACAT II program of record requirements. There are currently seven ARL-M configured systems and there will be eight ARL-E configured systems and one trainer.

## BENEFIT TO THE SOLDIER

ARL provides tactical commanders with day and night, all-weather, real-time airborne COMINT/IMINT collection and a designated area surveillance system. It provides real-time down-link of actionable intelligence to Brigade Combat Teams and higher echelons across the full range of military operations, including coalition support processes.

## SPECIFICATIONS

- Dual EO/IR Day/Night High-Definition F Sensors with Laser Range Finding and Target Designation Capability
- Tactical Signals and Communication Intelligence/Direction Finding Subsystems with Theater Net-Centric Geolocation
- Synthetic Aperture Radar and Ground/Dismount-Moving Target Indicator Radar
- Hyperspectral Imagery/Long Range Radar
- DCGS-A enabled workstations

## PROGRAM STATUS

- **1QFY16:** Project Manager, Sensor-Aerial Intelligence (PM SAI) awarded Mission Equipment Package (MEP) contract for the ARL-E program; MEP integration will fulfill the ARL-E Capability Production Document sensor requirements
- **FY16:** PM Fixed Wing (FW) delivered the first two ARL-E Cockpit/Aircraft Survivability Equipment (ASE) modified aircraft for induction into the ARL-E MEP integration effort
- **FY17:** PM FW delivered two ARL-E Cockpit/ASE modified aircraft for induction into the ARL-E MEP integration effort
- **FY18:**
  - PM SAI performs Systems Integration Laboratory/aircraft MEP integration

- PM FW delivered two ARL-E Cockpit/ASE
- **2QFY18:** PM FW awarded contract for ARL-M and ARL-E aircraft sustainment

### PROJECTED ACTIVITIES

- **2QFY19:** Delivery of the first two ARL-E systems
- **4QFY19:** Complete Follow-On Test and Evaluation
- **1QFY20:** First Unit Equipped
- **2QFY20:** Delivery of fourth ARL-E system
- **FY19-FY23:** Support force generation and sustainment of ARL-E and ARL-M
- **FY20:** Initiate divestment of legacy ARL-M (EO-5C) systems

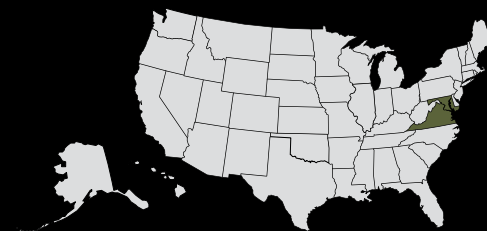
# ARL

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Adams Communications & Engineering Technology  
(Waldorf, MD)  
Leidos (Reston, VA)  
Northrop Grumman (Aberdeen Proving Ground, MD)



# Air Soldier System (Air SS)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Air Soldier System (Air SS) is flight crew life support equipment that improves mission effectiveness and duration by integrating protective clothing, personal electronics and survival equipment. Mission and survival gear sustains the aviation Soldier during severe weather, such as extreme heat and cold or submersion, and protects the Soldier from flash fire, crash impacts, and chemical and ballistic threats. Air SS reduces body-worn bulk and weight and provides a helmet-mounted display with symbology to improve flight crew coordination and safety in all conditions, including Degraded Visual Environments (DVE).

## BENEFIT TO THE SOLDIER

Air SS, through a Soldier-as-a-System approach, improves cockpit compatibility by reducing body-worn bulk and weight, enhances Situational Awareness (SA) and safety, including in DVE, and increases possible mission duration while elevating effectiveness.

## SPECIFICATIONS

- Mission Display Module and Soldier Computer Module for UH-60A/L aviators provides SA, mission planning and execution, and command-and-control messaging
- Improved HGU-56/P Flight Helmet enhances SA and safety for aircrews
- Electronic Flight Bag tactical tablet replaces paper-based information in the cockpit
- Common Helmet Mounted Display offers digital, wide field of view, color flat-panel display for UH-60 and CH-47 aviators
- Layered Clothing Ensemble improves mission effectiveness and endurance
- 3D DVE conformational symbology improves SA and safety for UH-60 and CH-47 aviators
- 72-hour Survival Items reduce bulk and weight

## PROGRAM STATUS

- **3QFY16:** Capability Production Document approval/ Milestone C
- **4QFY16:** Completed first follow-on Development Test/ Operational Test
- **2QFY18:** Completed UH-60L Operational Test

## PROJECTED ACTIVITIES

- **4QFY18:**
  - Milestone C Decision
  - Layered Clothing Full Rate Production (FRP)
- **2QFY19:** Electronic Flight Bag FRP
- **2QFY20:** Aircrew Combat Ensemble (ACE) Low Rate Initial Production
- **1QFY21:** ACE FRP

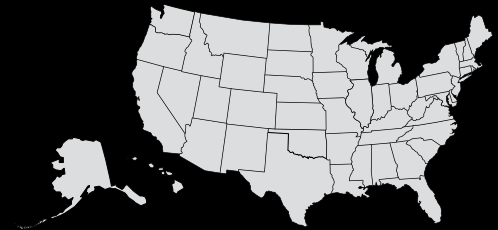
# Air SS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Government is the prime integrator with various vendors providing components.



# Aviation Combined Arms Tactical Trainer (AVCATT)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Aviation Combined Arms Tactical Trainer (AVCATT) is Army aviation's only collective training system of record for Active, Reserve and Army National Guard aviation units. AVCATT is a mobile, transportable, multistation virtual simulation device that supports unit collective and combined arms training for helicopter aircrews. The trainer is composed of two trailers per suite with six reconfigurable modules for the Apache Longbow, Chinook, Lakota and Black Hawk. The Non-Rated Crewmember Manned Module (NCM3) introduces a third trailer containing two reconfigurable modules that can be linked to the AVCATT's UH-60 Black Hawk and CH-47 Chinook cockpit configurations to support a unit's specific mission training requirements. Both the AVCATT and NCM3 use Helmet Mounted Displays for out-the-window scenes.

## BENEFIT TO THE SOLDIER

AVCATT provides unit collective and combined arms air-to-ground training for AH-64, UH-60, CH-47 and UH-72 aircrews within the Live, Virtual and Constructive-Integrated Training Environment. The AVCATT also supports the training of nonrated crew members in crew coordination, flight, aerial gunnery, and hoist and sling-load related tasks via the NCM3.

## SPECIFICATIONS

### AVCATT:

- Consists of two wheel-mounted mobile trailers each measuring 53 feet long, 8.5 feet wide and 13.5 feet high
- Recommended improved surface area for setup is 70 feet long by 35 feet wide

### NCM3:

- Consists of one wheel-mounted mobile trailer measuring 53 feet long, 8.5 feet wide and 13.5 feet high
- Recommended improved surface area for setup is 60 feet long by 25 feet wide

- Trailers are not self-propelled; they require external power and water hose connection; external shore power preferred
- Requires contracted personnel support provided through field operations program management office

## PROGRAM STATUS

### • 4QFY17:

- Achieved CH-47F concurrency
- Software version 17.0 partially accredited

- **2QFY17:** Headquarters, Department of the Army Execution Order 088-18 reduced Army Procurement Objective to 21 AVCATT and 21 NCM3

## PROJECTED ACTIVITIES

### • FY19:

- AVCATT achieves Full Operational Capability with the fielding of the last NCM3
- Software version 18.0 Government Acceptance and Fielding
- NCM3 technology refresh

- **FY20:** AVCATT enters Operations and Sustainment (O&S)

- **FY22:** NCM3 enters O&S



# AVCATT

## FOREIGN MILITARY SALES

None

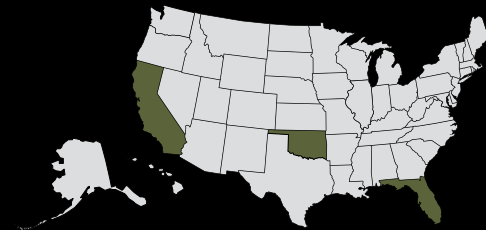
## CONTRACTORS

AVT Simulation (Orlando, FL)

CymSTAR, LLC (Broken Arrow, OK)

Cole Engineering Services, Inc. (Orlando, FL)

Applied Companies (Valencia, CA)



# Close Combat Tactical Trainer (CCTT)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Close Combat Tactical Trainer (CCTT) is designed to provide Infantry, Armor, Mechanized Infantry, Cavalry and Armored Reconnaissance crews, units and staff with a virtual, collective training capability that will increase and sustain readiness. Soldiers train using full-crew simulators, mock-up command posts and live battalion command posts to accomplish their combined arms training tasks. Units can conduct multiple platoon-level training events, or company and team collective training up to battalion task force level. CCTT allows for up to 32 simultaneous, independent exercises.

CCTT has three subsystems: CCTT, Reconfigurable Vehicle Tactical Trainer (RVTT) and Dismounted Soldier Training System (DSTS). The CCTT system consists of computer-driven, manned-module simulators replicating the many fighting vehicles found in close combat units. Semi-Automated Forces (SAF) populate the battlefield with computer-generated friendly and enemy entities that work interactively with the manned modules. These simulators and SAFs are connected via a local area network to provide real-time, fully interactive, collective task training on computer-generated terrain.

The RVTT component complements the CCTT family with a representation of a wide variety of wheeled vehicles. It supports Infantry Brigade Combat Team, Airborne, Rangers and Special Forces units as well as improvised explosive device-defeat training.

DSTS is a virtual trainer focused on the individual Soldier and squad-level training that combines gaming technology in a virtual, 360-degree training environment using untethered weapons. It provides an immersive training environment of an extensive variety of dismounted Soldier tasks.

## BENEFIT TO THE SOLDIER

CCTT trainers allow inexperienced Soldiers to gain critical experience, confidence and tactical knowledge in a realistic, but safe environment, which translates directly into increased effectiveness in live training and combat operations.

## SPECIFICATIONS

- 7 CCTT/Reconfigurable Vehicle Simulator fixed sites
- 7 CCTT mobile sites
- 11 RVTT fixed sites
- 12 RVTT mobile sites

## PROGRAM STATUS

- **4QFY17:**
  - Completed divestment of DSTS
  - Began fielding Bradley Fire Support Team upgrades
- **1QFY17-3QFY18:** Source selection evaluation for Manned Module Modernization Contract
- **2QFY18:** Contract award for CCTT Post Deployment Software Support re-compete
- **3QFY18:**
  - Award trailer support contract
  - Completion of CCTT concurrency contract
  - Completion of 18.2 installations
  - Complete Foreign Military Sales Australia Letter of Agreement
- **4QFY18:**
  - CCTT re-accreditation
  - Contract award for Manned Module Modernization

## PROJECTED ACTIVITIES

- 1QFY19: Completion of 19 installations
- 4QFY19: Prepare for transition to Sustainment
- 1QFY20: System transitions to Sustainment
- 1QFY21-4QFY23: System divestment



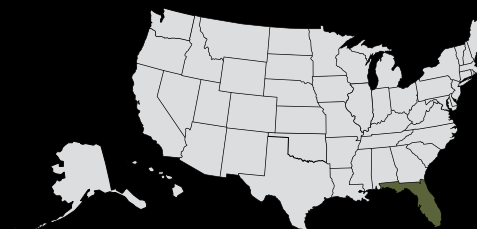
## CCTT

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Lockheed Martin Training and Logistics Solutions  
(Orlando, FL)  
AVT Simulation (Orlando, FL)



# Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) provides a persistent airborne intelligence, surveillance and reconnaissance capability to detect, locate, classify, identify and track surface targets with a high degree of timeliness and accuracy during day, night and nearly all weather conditions. It enhances Brigade Combat Team effectiveness by defining and assessing the communications environment and providing surveillance, targeting support and threat warning.

EMARSS contains a tailored set of Distributed Common Ground System-Army (DCGS-A) enabled software intelligence, surveillance and reconnaissance functionalities to process, exploit and rapidly disseminate the intelligence derived from the imagery sensors. Selected EMARSS imagery is immediately processed on the aircraft and forwarded to DCGS-A for further processing, analysis and reporting.

EMARSS complies with Department of Defense (DOD) Information Technology Standards Registry and Defense Information Systems Network. This architecture enables interoperability with any multiservice or joint system that complies with DOD standard formats for data transfer and dissemination.

## BENEFIT TO THE SOLDIER

EMARSS enables the Aerial Exploitation Battalions within the Intelligence and Security Command to provide command and control, mission planning, sustainment support and deployment packages to facilitate worldwide missions in accordance with standard joint and Army tasking processes.

## SPECIFICATIONS

- **EMARSS-S:** Signals Intelligence with Broad Spectrum Signals Intelligence and High Definition (HD) Full Motion Video (FMV)
- **EMARSS-G:** Geospatial intelligence with Wide Area Aerial Surveillance (WAAS), Light Detection and Ranging, and HD FMV
- **EMARSS-M:** Multi-intelligence with Signals Intelligence and HD FMV
- **EMARSS-V:** Vehicle and Dismount Exploitation Radar with Vehicle and Dismount Moving Target Indication, Signals Intelligence and HD FMV

## PROGRAM STATUS

- **FY16:** EMARSS achieved Urgent Materiel Release (UMR) for EMARSS-S
- **3QFY16:** Deployed two EMARSS-S variants to U.S. Africa Command (AFRICOM) and one EMARSS-S variant to U.S. Southern Command
- **FY17:** Delivered Initial Variant Modification for EMARSS-G, -M and -V variants
- **2QFY17:** Follow-on Operational Test and Evaluation was completed
- **4QFY17:** Deployed two EMARSS-V and one EMARSS-G variants to U.S. Central Command (CENTCOM)
- **FY18:** Conducted testing on aircraft modification kits that provide increased endurance in high-altitude, hot temperature environments
- **2QFY18:**
  - EMARSS achieved UMR for all variants
  - Deployed two EMARSS-G and one EMARSS-M variants to CENTCOM and one EMARSS-G variant to AFRICOM

## PROJECTED ACTIVITIES

- **FY19:** Complete Delivery and Fielding of 24 EMARSS systems
- **1QFY19:** Attain Conditional Materiel Release for all EMARSS variants
- **FY19-FY23:**
  - Sustain 24 EMARSS systems
  - Develop and procure Pre-Planned Product Improvements and upgrades to the EMARSS system, including cockpit displays, navigation systems, aircraft survivability equipment, signals intelligence systems, Light Detection and Ranging (LIDAR) sensor system and WAAS

# EMARSS

## FOREIGN MILITARY SALES

None

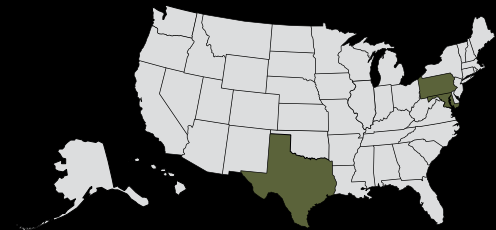
## CONTRACTORS

Boeing (Ridley Park, PA)

L3 Aerospace Systems (Greenville, TX)

Sierra Nevada Corporation (Hagerstown, MD)

Adams Communications & Engineering Technology, Inc. (Waldorf, MD)



# Enhanced Night Vision Goggle (ENVG)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The AN/PSQ-20 Enhanced Night Vision Goggle (ENVG) provides dismounted Brigade Combat Team warfighters the capability to observe and maneuver in all weather conditions, through obscurants, during limited visibility and under all lighting conditions while enabling rapid detection and engagement with rifle-mounted aiming lasers. ENVG uses both image intensification and infrared (thermal) sensors.

## BENEFIT TO THE SOLDIER

ENVG I/II/III allows the individual Soldier to see, understand and act first during limited visibility conditions. The systems combine the visual detail in low-light conditions that is provided by image intensification with the thermal sensor's ability to see through fog, dust and smoke. This thermal capability makes ENVG useful during the day as well as at night, unlike earlier night vision devices.

ENVG III receives wirelessly transmitted weapon sight crosshair and thermal imagery from the Family of Weapon Sights-Individual, thus providing a Rapid Target Acquisition (RTA) capability. RTA enables Soldiers to detect, recognize and engage targets accurately from any carry position and with significantly reduced exposure to enemy fire.

## SPECIFICATIONS

- Man-sized target recognition:
  - 80 percent probability at 150 meters (threshold) and 300 meters (objective)
  - 50 percent probability at 300 meters (threshold) and 550 meters (objective)
- Total system weight:
  - Less than 2 pounds (threshold) and 1.5 pounds (objective)
- Operating hours (continuous fusion):
  - Greater than 7.5 hours (threshold) and 15 hours (objective)

## PROGRAM STATUS

- **4QFY16:** Type Classification – Standard
- **2QFY18:** First Article Test

## PROJECTED ACTIVITIES

- **1QFY19:**
  - ENVG III Full Materiel Release
  - ENVG III Production begins
- **2QFY19:** ENVG III fieldings begin in accordance with Headquarters Department of the Army G-8 priorities



# ENVG

## FOREIGN MILITARY SALES

None

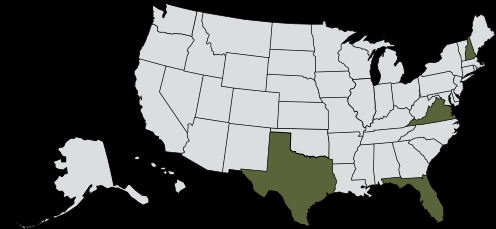
## CONTRACTORS

Harris (Roanoke, VA)

L3 Warrior Sensor Systems (Londonderry, NH)

Leonardo DRS (Melbourne, FL, and Dallas, TX)

BAE Systems (Nashua, NH)



# Enhanced Night Vision Goggle - Binocular (ENVG-B)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## DESCRIPTION

The Enhanced Night Vision Goggle – Binocular (ENVG-B) provides dismounted Brigade Combat Team warfighters the capability to observe and maneuver in all weather conditions, through obscurants, during limited visibility and under all lighting conditions while enabling rapid detection and engagement with rifle-mounted aiming lasers. ENVG-B uses image intensification, infrared (thermal) sensors and augmented reality enhancements. The introduction of the “White Light” tube allows the user to see imagers in a white field instead of the current green background.

## BENEFIT TO THE SOLDIER

ENVG-B allows the individual Soldier to see, understand and act first during limited visibility conditions. The goggles combine the visual detail in low-light conditions that is provided by image intensification with the thermal sensor’s ability to see through fog, dust and smoke. This thermal capability makes ENVG-B useful during the day as well as at night, unlike earlier night vision devices. Higher resolution stereoscopic displays allow for faster target acquisition by improving separation of targets from background. Additionally, ENVG-B will receive wirelessly transmitted weapon sight crosshair and thermal imagery from the Family of Weapon Sights-Individual; thus, providing a Rapid Target Acquisition capability that enables Soldiers to detect, recognize and engage targets accurately from any carry position and with significantly reduced exposure to enemy fire.

## SPECIFICATIONS

- Man-sized target recognition:
  - 80 percent probability at 150 meters (threshold) and 300 meters (objective)
  - 50 percent probability at 300 meters (threshold) and 550 meters (objective)

- Total system weight:
  - Less than 2.5 pounds (threshold) and 1.5 pounds (objective)
- Operating hours (continuous fusion):
  - Greater than 7.5 hours (threshold) and 15 hours (objective)

## PROGRAM STATUS

- **1QFY18:** Approved Directed Requirement
- **3QFY18:** Initial Combat Solution (ICS) ENVG-B contract awarded
- **4QFY18:** Limited User Evaluation (LUE) 1 for ICS ENVG-B

## PROJECTED ACTIVITIES

- **1QFY19:** Award Other Transaction Authority to multiple vendors for Full & Open (F&O) ENVG-B
- **2QFY19:** LUE 2 for ICS ENVG-B
- **4QFY19:** Initial fielding for ICS ENVG-B
- **4QFY21:** Fielding of F&O ENVG-B

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support





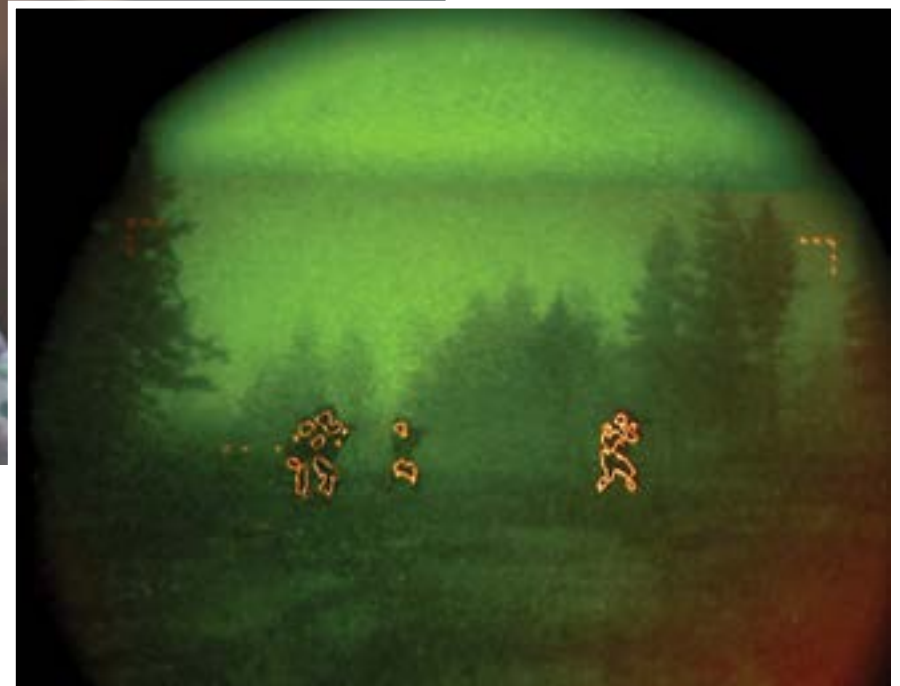
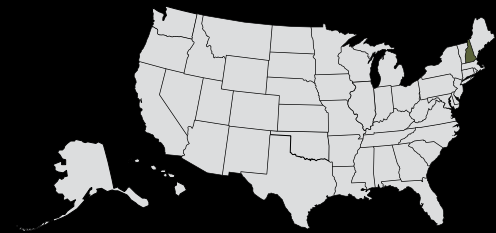
## ENVG-B

### FOREIGN MILITARY SALES

None

### CONTRACTORS

L3 Warrior Sensor Systems (Londonderry, NH)



# Fixed Wing

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

Army fixed wing aviation units serve as intelligence and electronic warfare assets, provide timely movement of key personnel to critical locations throughout the theater of operations, and support worldwide peacetime contingencies and humanitarian relief efforts. The fixed wing fleet consists of 285 aircraft comprised of nine missions, 11 designs and 32 series. All Army fixed wing aircraft are commercial derivative aircraft and are divided into two categories: Special Electronic Mission Aircraft (SEMA) and Transport Aircraft.

## BENEFIT TO THE SOLDIER

Army fixed wing aviation units serve as intelligence and electronic warfare assets, and provide timely movement of key personnel to critical locations throughout the theater of operations.

## SPECIFICATIONS

- The SEMA Product Directorate manages aerial intelligence, surveillance and reconnaissance programs such as the Enhanced Medium Altitude Reconnaissance and Surveillance System, Airborne Reconnaissance Low-Enhanced, and Guardrail/Common Sensor. These programs are featured individually in the WSH.
- The Transport Aircraft Product Office manages two distinct fleets of aircraft: the Mission Support Aircraft fleet consists of aircraft such as the T-6 trainer used by the Army Test and Evaluation Command; the UV-18, C-147 and C-31 used by the Golden Knights Parachute Team; a variety of Quick Reaction Capability aircraft, one example is the Night Eagle aircraft, an asset capable of locating emplaced improvised explosive devices; and the Operational Support Aircraft fleet, which includes aircraft used for personnel and executive transport like the C-12, C-26, UC-35, C-20 and C-37. The Transport Aircraft Product Office also oversees

the development of the Fixed Wing Utility Aircraft (FUA), a retirement and replacement program for the aging fleet of C-12 and C-26 aircraft in the Operational Support Aircraft fleet.

- Transport and SEMA fleets are continuously modernized with the most current communication, navigation, surveillance and survivability systems that enhance mobility and expeditionary capabilities to provide superior force projection in both contested and non-contested environments.

## PROGRAM STATUS

- **1QFY17:**
  - C-12 fleet continues to undergo the Automated Dependent Surveillance-Broadcast Out Modification to meet the Federal Aviation Administration's Global Air Traffic Management (GATM) mandate in January 2020
  - UC-35 fleet is also undergoing an extensive avionics upgrade to meet all GATM mandates and a cockpit refresh to address obsolescence issues
- **2QFY17:** C-147 delivery to the Golden Knights Parachute Demonstration Team
- **4QFY18:** FUA will issue a Request for Project Proposals for prototype demonstrators

## PROJECTED ACTIVITIES

- **2QFY19:** FUA will award a FUA prototype demonstration contract
- **4QFY19:** Second C-147A delivery
- **3QFY20:** FUA Milestone C and Low Rate Initial Production Contract Award

# Fixed Wing

## FOREIGN MILITARY SALES

Brazil, Canada, Egypt, Greece and Israel

## CONTRACTORS

Adams Communications & Engineering Technology  
(Reston, VA)

DynCorp International (McLean, VA)

Gulfstream (Savannah, GA)

L3 Aerospace Systems (Greenville, TX)

Leidos (Reston, VA)

Northrop Grumman Technology Services (Dallas, TX)

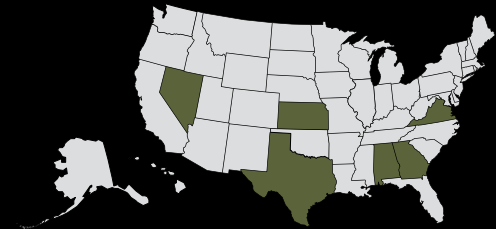
King Aerospace (Addison, TX)

Sierra Nevada Corporation (Sparks, NV)

Support Systems Associates, Inc. (Huntsville, AL)

Systems Engineering Solutions, Inc. (Huntsville, AL)

Textron Aviation (Wichita, KS)



# Force Provider Expeditionary (FPE)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Each Force Provider Expeditionary (FPE) system is a high-quality force projection capability that contains billeting, latrines, showers, laundry and kitchen facilities. The system includes fuel support, water and waste management, environmental control units, power generation and power distribution to support 50-150 Soldiers.

FPE is stored in Army Prepositioned Stocks 1, 2, 4 and 5 to support combatant commanders' requirements. All system components weigh less than 10,000 pounds and are prepackaged for rapid transport via air (C-130, C-141, C-5 and C-17), sea, road or rail.

Additional operational add-on kits include cold-weather kits, prime-power kits, large-scale electric kitchens, administration kits and morale welfare and recreation kits. Energy efficiency capabilities include a shower water reuse system, energy saving solar shades and insulating liners. These operational energy upgrades reduce fuel, power and water requirements. Tents in FPE use AirBeam shelter technology, which reduces setup time from days to hours.

## BENEFIT TO THE SOLDIER

FPE allows combatant commands to project force anywhere around the world within 24 to 48 hours. It provides configurable, containerized, expeditionary Soldier sustainment capability designed to improve the Soldier's performance, while reducing fuel, power and water consumption rates.

## SPECIFICATIONS

- A 150-Soldier FPE set deploys triple containers (TRICON) consisting of:
  - Two latrine systems
  - Two shower systems

- One kitchen system
- One laundry system
- One refrigerated container
- Six 60-kW generators and power distribution equipment
- Eight modular personnel tents (air supported) each with environmental control unit (ECU)
- Two 400,000 British-thermal-unit water heaters
- One improved fuel distribution system
- All system components weigh less than 10,000 pounds

## PROGRAM STATUS

- **2QFY18-2QFY19:** Energy efficient modification of ECUs
- **3QFY18:** Type Classification – Standard/Full Materiel Release
- **3QFY18-1QFY20:** Integration of Rigid Wall Shelters

## PROJECTED ACTIVITIES

- **FY19:** Integration of Self-Serve Laundry capability



# FPE

## FOREIGN MILITARY SALES

None

## CONTRACTORS

**Force Provider Assembly:** Letterkenny Army Depot (Chambersburg, PA); Ready One (San Antonio, TX)

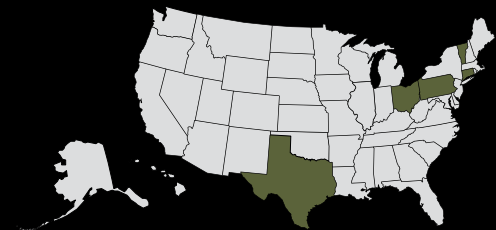
**Expeditionary TRICON Kitchen System and Force Provider Electric Kitchen:** Tri-Tech USA, Inc. (South Burlington, VT)

**Airbean Tent:** HDT (Solon, OH)

**Environmental Control:** HDT (Solon, OH)

**Mobile Electric Power Distribution System**

**Replacement:** Lex Products Corp. (Stamford, CT)



# Forward Area Air Defense Command and Control (FAAD C2)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Forward Area Air Defense Command and Control (FAAD C2) software provides critical C2, situational awareness and automated air track information by integrating engagement operations software to support multiple missions, including:

- Avenger
- Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-based Phalanx Weapon System
- Army Counter-Unmanned Aircraft System
- Maneuver Short Range Air Defense
- U.S. Marine Corps (USMC) Mobile Aerial Defense Integrated System
- Army Mission Command

FAAD C2 supports air defense and C-RAM weapon systems engagement operations by tracking friendly and enemy aircraft, cruise missiles, unmanned aircraft systems, and mortar and rocket rounds as identified by radar systems. The system also performs C2 engagement operations for Short Range Air Defense and C-RAM system-of-systems.

FAAD C2 uses the following communication systems:

- Link 16
- Link 11/11B
- Joint Range Extension Application Protocol
- Advanced Tactical Data Link
- Dedicated Fire Control Networks

FAAD C2 provides an air picture to engagement and force operations via standard interfaces and based on data gathered from various sensors. FAAD C2 is integrated with the following sensor systems, including but not limited to:

- AN/MPG-64 Sentinel
- AN/TPQ-50 Lightweight Counter Mortar Radar
- AN/TPQ-53 Counterfire Target Acquisition Radar

- Ku-band Radio Frequency System Radar
- Lightweight Surveillance Tracking and Acquisition Radar
- Giraffe Agile Multi-Beam
- Various electro-optical/infrared cameras

FAAD C2 provides joint C2 interoperability and horizontal integration with Army and USMC C2 and air defense artillery systems.

## BENEFIT TO THE SOLDIER

FAAD C2 provides a real-time correlated air picture of the battlespace, with positive aircraft identification, for early detection, warning and response to forward deployed forces.

## SPECIFICATIONS

- FAAD C2 is currently hosted on a SRNC-17 laptop computer and Dell 7212 tablet computer

## PROGRAM STATUS

- **1QFY16:** Urgent Material Release (UMR) – FAAD v5.5C-2.2
- **2QFY16:** Full Material Release (FMR) – FAAD v5.5C-2.0
- **3QFY16:** UMR – FAAD v5.5C-2.3p1
- **4QFY17:**
  - UMR – FAAD v5.6A -1.0p1
  - FMR – FAAD C2 v5.5C-2.2p1
- **1QFY18:**
  - System Certification Testing – FAAD v5.6A-1.0p1.1
  - Army Interoperability Certification Testing – FAAD v5.6A-1.0p1.1
- **2QFY18:** Joint Interoperability Certification – FAAD v5.6A-1.0p1
- **3QFY18:** Full Software Release – FAAD C2 v5.5C-2.2p3

- **4QFY18:**
  - UMR – FAAD v5.6A-2.2
  - UMR – FAAD v5.6A-1.0p1.1 and v5.6A-1.0p3

### PROJECTED ACTIVITIES

- **1QFY19:** FMR – FAAD v5.6A-1.0p1.1 and v5.6A-1.0p3
- **2QFY20:** FMR – FAAD v5.6B-1.0
- **4QFY21:** FMR – FAAD v5.6C-1.0
- **2QFY23:** FMR – FAAD v5.6D-1.0

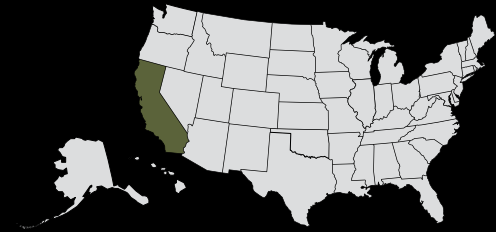
# FAAD C2

## FOREIGN MILITARY SALES

Australia and Egypt

## CONTRACTORS

Northrop Grumman (Redondo Beach, CA)



# Husky Mounted Detection System (HMDS)

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Husky Mounted Detection System (HMDS) is a counter explosive hazard system that provides standoff detection and marking of metallic and low-metallic surface-laid, shallow-buried antitank landmines, trigger mechanisms and deep buried improvised explosive devices (IEDs) in support of area access route clearance operations. HMDS is a mission equipment package mounted on current and programmed Husky vehicles organic to engineer units.

## BENEFIT TO THE SOLDIER

HMDS is the only vehicle-mounted sensor in the Army inventory capable of interrogating and detecting buried explosive hazards. It provides increased standoff distance and protection for the operator. HMDS will operate in complex and urban terrain, minimize warfighter workload and move the warfighter out of the blast zone.

## SPECIFICATIONS

The baseline HMDS ground penetrating radar system (variant used in theater and being fielded as a program of record to the force) will be modified incrementally to provide additional capability through four Engineering Change Proposals (ECP).

- **ECP 1:** Wire Detection and Infrared Illumination for detection of victim operated IED indicators and improved night operations
- **ECP 2:** Upgraded Mission Computer and Risk Management Framework compliance
- **ECP 3:** Advanced Ground Penetrating Radar
- **ECP 4:** Deep buried and degraded radar environment detection capability

## PROGRAM STATUS

- **4QFY17:** Milestone C, entered Production and Deployment.

## 4QFY18:

- Hardware Indefinite Delivery/Indefinite Quantity (IDIQ) contract award
- ECP 1 and 2 Development and Integration Contract Award

## PROJECTED ACTIVITIES

- **2QFY19:** Development Test and Limited User Test for ECP 1 and 2
- **3QFY19:** Initial Operational Capability of HMDS baseline system to the Army
- **2QFY20:** Production and Engineering Support IDIQ contract (supports production and ECP 3 and 4 development)



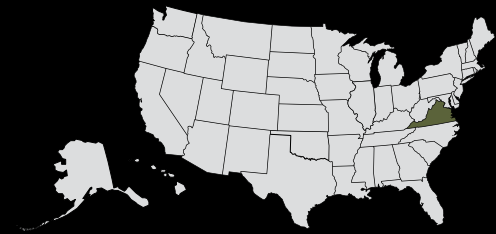
# HMDS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Chemring Sensors & Electronic Systems (Sterling, VA)



# Instrumentable-Multiple Integrated Laser Engagement System (I-MILES)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Instrumentable-Multiple Integrated Laser Engagement System (I-MILES) is designed to simulate both the firing capabilities and the vulnerability of dismounted troops, tactical vehicles and combat vehicles and to objectively assess weapon effects during training. This provides unit commanders an integrated training system to use at the home station local training area and instrumented training areas. It will replace legacy systems at the end of useful life and in accordance with the Army-wide distribution plan.

I-MILES is a laser-based training device used on Soldiers, small arms, tactical vehicles, tanks, Bradley Fighting Vehicles and opposing forces (OPFOR) to provide real-time casualty effects. The I-MILES program is comprised of five product lines:

- Individual Weapon System (IWS)
- Tactical Vehicle System (TVS)
- Combat Vehicle System
- Shoulder Launched Munitions
- Universal Controller Device

Together, these provide the ability to adjudicate force-on-force training and provide data used in the After Action Review. It is an evolutionary approach to replace older I-MILES equipment with devices that provide better training fidelity. Use of the system, from squad-through-brigade-level exercises, reinforces good tactical maneuver skills by training Soldiers how to avoid direct fire as well as reward good target engagement ability. The system interfaces with instruments at both home stations and Combat Training Centers. The I-MILES modular design will accommodate new weapons, ammunition, vulnerabilities and vehicle types. The Army will use and field I-MILES worldwide.

## BENEFIT TO THE SOLDIER

I-MILES allows Soldiers to train as they fight using their tactical equipment and adding I-MILES equipment. Soldiers can function fully and operate as they would in a cooperative environment with other local units or multinational partners.

## SPECIFICATIONS

- Works with a variety of weapon platforms
- Uses laser transmitter that sends simulated laser MILES code at laser detectors attached to Soldiers, vehicles, etc.
- Uses Class 3A/3R lasers to replicate the engagement effects of line-of-sight weapon systems
- Capable of operating between 100 and 336 hours without power source replacement

## PROGRAM STATUS

- **Combat Vehicle Tactical Engagement Simulation System (CVTESS): FY17:** 2,068 kits will have been fielded; Abrams/Bradley and OPFOR platforms
- **FY18:** Operations and Support
- **3QFY18:** Contract completion

## PROJECTED ACTIVITIES

- **CVTESS: FY19-FY38:** Technology Refreshment to maintain program relevancy and to support Force-on-Force training as weapons platforms evolve
- **IWS 2: FY19-FY38:** Technology Refreshment to maintain program relevancy and to support Force-on-Force training as weapons platforms evolve
- **TVS: FY19-FY38:** Technology Refreshment to maintain program relevancy and to support Force-on-Force training as weapons platforms evolve
- **Vehicle Tactical Engagement Simulation System: FY19-FY21:** Fulfill TVS Basis of Issue of 9,004 Kits



# I-MILES

## FOREIGN MILITARY SALES

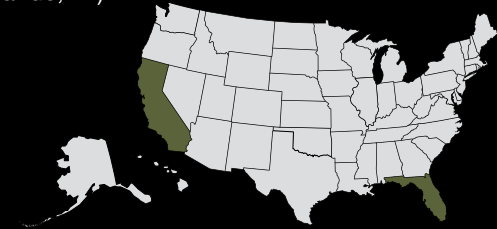
None

## CONTRACTORS

Cubic Global Defense (San Diego, CA)

Saab Training USA, LLC (Orlando, FL)

Lockheed Martin Rotary and Mission Systems  
(Orlando, FL)



# Joint Assault Bridge (JAB)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
**Production & Deployment**  
Operations & Support

## DESCRIPTION

The Joint Assault Bridge (JAB) provides the Army Mobility Augmentation Companies and Brigade Engineer Battalions supporting Armored Brigade Combat Teams (ABCT) with a survivable, deployable and sustainable heavy-assault-bridging capability. The JAB will provide a gap-crossing capability to cross wet or dry gaps to provide freedom of maneuver on the battlefield and keep pace with Abrams ABCT operations. The JAB is a M1A1 Abrams tank hull with heavy (M1A2) suspension integrated with a hydraulic bridge launcher system to launch the existing Armored Vehicle Launched Bridge (AVLB) Military Load Class 95 Scissor Bridge. The JAB improves survivability, mobility and supportability for the warfighter.

## BENEFIT TO THE SOLDIER

The JAB provides survivability equal to the M1A1 chassis. It is the sustainable system designated to replace the AVLB system (chassis and launcher), which is mounted on an obsolete and unsupported chassis. The M1A1 Abrams chassis base makes this system more affordable than the Wolverine (M1A2 System Enhancement Program-based). The JAB will replace the AVLB system (chassis and launcher) on a 1-for-1 basis up to 337 JAB systems.

## SPECIFICATIONS

- Military load capacity: 85 tons
- Span: 18.3 meters
- Performance: Comparable to the M-1 Abrams and Assault Breacher Vehicle

## PROGRAM STATUS

- **2QFY16:**
  - Milestone C
  - Low Rate Initial Production (LRIP) Contract Award
- **FY16-FY18:** LRIP Test Asset Production
- **2QFY18:** Live Fire Test and Evaluation

## PROJECTED ACTIVITIES

- **3QFY18-1QFY19:** Production Qualification Test
- **2QFY19:** Initial Developmental Test /Operational Test
- **FY20-FY23:** Production and Fielding

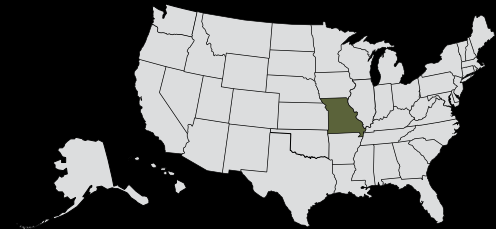
# JAB

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Leonardo DRS (St. Louis, MO)



# Joint Battle Command-Platform (JBC-P)



PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD

## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Joint Battle Command-Platform (JBC-P), fielded to the first unit equipped in May 2015, is the Army's next-generation, friendly force tracking system, equipping Soldiers with a faster satellite network, secure data encryption and advanced logistics. It incorporates the common hardware solution known as the Mounted Family of Computer Systems (MFoCS), standardized tactical computers that are scalable and tailorable to the mission and vehicle. Ranging in options from a detachable tablet to a fully loaded, vehicle-mounted workstation. MFoCS runs not only JBC-P, but can also run other software applications reducing size, weight and power demands.

JBC-P builds on the situational awareness capability known as Force XXI Battle Command Brigade and Below/Blue Force Tracking, which is integrated on more than 120,000 platforms and is fielded or authorized to every Brigade Combat Team in the Army. The system also includes an intuitive interface with features like touch-to-zoom maps and drag-and-drop icons. JBC-P will be interoperable with the Nett Warrior handheld device, managed by Program Executive Office Soldier, delivering situational awareness capabilities to dismounted Soldiers.

## BENEFIT TO THE SOLDIER

JBC-P is the Army's next friendly force tracking system, equipping Soldiers with a faster satellite network, secure data encryption and advanced logistics.

## SPECIFICATIONS

- Enables Soldiers to receive orders, view graphical overlays and obtain situational awareness of friendly, hostile, neutral, unknown and noncombatant entities
- Allows communications between Soldiers, including free draw, text, chat and combat messages

- Provides capability to pinpoint locations through sensor integration
- Offers improved user interface
- Generates Electronic Casualty Report
- Facilitates improved route planning
- Utilizes universal hardware through the MFoCS
- Integrates with Nett Warrior handheld devices hybrid network

## PROGRAM STATUS

- **1QFY17:** Joint (U.S. Marine Corps) Initial Operational Capability
- **2QFY18:** Full Materiel Release
- **4QFY18:** MFoCS Block II Contract Award

## PROJECTED ACTIVITIES

- **1QFY20:** JBC-P software transition to Sustainment
- **3QFY22:** Blue Force Tracker 3/Next Gen hardware Operational Test
- **3QFY23:** Full Operational Capability



## JBC-P

### FOREIGN MILITARY SALES

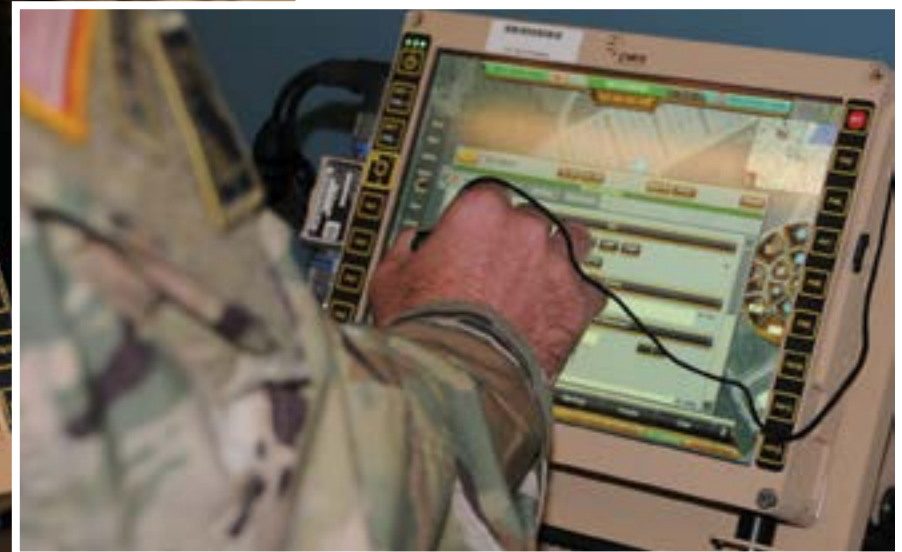
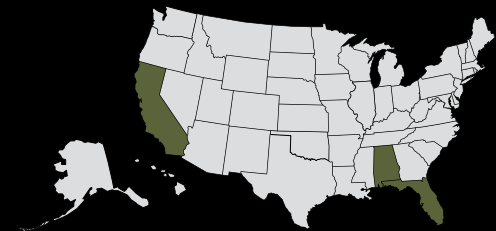
None

### CONTRACTORS

**Software Development (Government Performing):** Software Engineering Directorate (SED), U.S. Army Aviation and Missile Research, Development and Engineering Center (Huntsville, AL)

**MFoCS Hardware:** Leonardo DRS (Melbourne, FL)

**Satellite Network Upgrade:** Viasat (Carlsbad, CA)



# Joint Effects Targeting System (JETS) Target Location Designation System (TLDS)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Effects Targeting System (JETS) Target Location Designation System (TLDS) is an Army-led, joint-interest program with the Air Force and Marine Corps to develop and field a one-man-portable, handheld capability to rapidly acquire, precisely locate and accurately engage targets with precision-guided munitions, and improve the effectiveness of engagement with unguided munitions.

## BENEFIT TO THE SOLDIER

JETS addresses a high-priority capability gap for a lightweight, highly accurate targeting system that allows a single Soldier to engage targets with precision munitions (e.g., Joint Direct Attack Munition, Excalibur and laser-guided weapons) and provide the warfighter with crucial digital connectivity to request and control indirect fires and close air support from all joint assets. JETS allows small units supported by Army forward observers or Joint Tactical Area Communications Systems to have access to precision targeting in all operational environments.

## SPECIFICATIONS

- System weight: Handheld target locator module weighs less than 5.5 pounds (threshold) and 3 pounds (objective); system weight less than or equal to 17 pounds
- Target Location Error: Less than or equal to 10 meters at 2.5 km (threshold) and 5 meters at 5 km (objective)

## PROGRAM STATUS

- **3QFY16:** Milestone C
- **4QFY16:** Production Contract Award
- **2QFY18:** Initial Operational Test and Evaluation
- **4QFY18:**
  - Type Classification-Standard
  - Materiel Release

## PROJECTED ACTIVITIES

- **1QFY19:** Full Rate Production





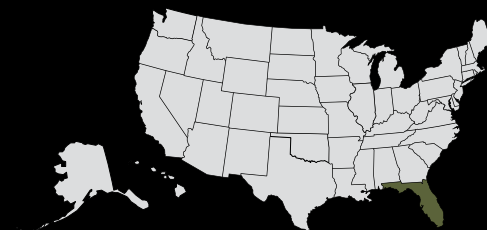
# JETS TLDS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Leonardo DRS (Melbourne, FL)



# Joint Land Component Constructive Training Capability (JLCCTC)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Joint Land Component Constructive Training Capability (JLCCTC) provides the capability to train commanders and their staffs by supplying accurate representations of tactically and operationally relevant land warfare operations executed in a contemporary Joint Operating Environment/context. JLCCTC is the foundational simulation for Army Warfighter Exercises. The Common Battle Command Simulation Equipment procures and delivers Commercial Off-The-Shelf hardware/software to Mission Command Training Centers.

JLCCTC is the Army's constructive simulation toolkit, supporting institutional and operational unit training for the Active Component, Reserve Component and National Guard units providing capabilities across the range of warfighting functions. JLCCTC is a software modeling and simulation capability that contributes to the Army's Training Support System by providing appropriate levels of modeling and simulation resolution and fidelity to support unit collective and combined arms training.

## BENEFIT TO THE SOLDIER

JLCCTC enables commanders and their staffs to hone their warfighting skills and refine standard operating procedures for the effective operation of a tactical operations center. The wide spectrum of functional capabilities within JLCCTC accurately replicates real-world situations. JLCCTC will immerse commanders and their staffs in the simulated fight.

## SPECIFICATIONS

- Software-intensive
- Stimulates Mission Command Systems
- Can accommodate hundreds of individual computers for role players
- Individual computers must meet certain processing standards

## PROGRAM STATUS

### • FY16-FY18:

- Fielded JLCCTC v8.0 to 10 Army sites worldwide
- Began fielding JLCCTC v8.1 to Army sites worldwide
- Supported the Key Resolve 18 Exercise at the Korea Battle Simulation Center (KBSC) using JLCCTC v7.1
- Supported the Ulchi Freedom Guardian 18 Theater Level Exercise at KBSC using JLCCTC v7.1
- Supported the Yama Sakura 75 Exercise in Japan using JLCCTC v7.1

## PROJECTED ACTIVITIES

### • FY19-FY23:

- Continued Fielding of JLCCTC v8.1 to Army sites
- Continued support to warfighter exercises
- Develop and implement Cloud capabilities for JLCCTC exercise use cases



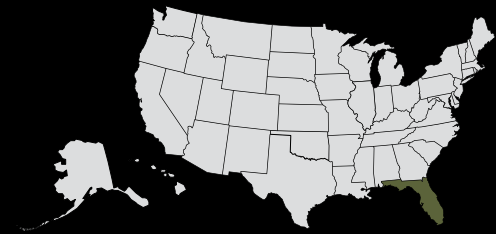
# JLCCTC

## FOREIGN MILITARY SALES

Japan

## CONTRACTORS

Lockheed Martin Training and Logistics Solutions  
(Orlando, FL)



# Joint Warning and Reporting Network (JWARN) 1

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Joint Warning and Reporting Network (JWARN) 1 provides joint forces with a capability to report, analyze and disseminate detection, identification, location and warning information to accelerate the warfighter's response to a Chemical, Biological, Radiological and Nuclear (CBRN) attack. JWARN is a computer-based application integrating CBRN data and sensor information into joint and service command and control systems for battlespace situational awareness. JWARN replaces the manual processes of incident reporting, hazard plot generation and warning affected forces.

## BENEFIT TO THE SOLDIER

JWARN 1 reduces the time from incident observation to warning to less than two minutes, enhances situational awareness throughout the area of operations and supports warfighter battle management tasks.

## SPECIFICATIONS

- Incorporates sensor alert information and CBRN observation reports from the field
- Makes a plot of the hazard area
- Provides overlays for display on the Common Operational Picture
- Generates warning message to units

## PROGRAM STATUS

- **FY16-FY18:** Conducted Production and Deployment activities

## PROJECTED ACTIVITIES

- **FY19:** JWARN 1 will sundown as a program of record as it transitions to JWARN 2 as a cloud-hosted CBRN capability

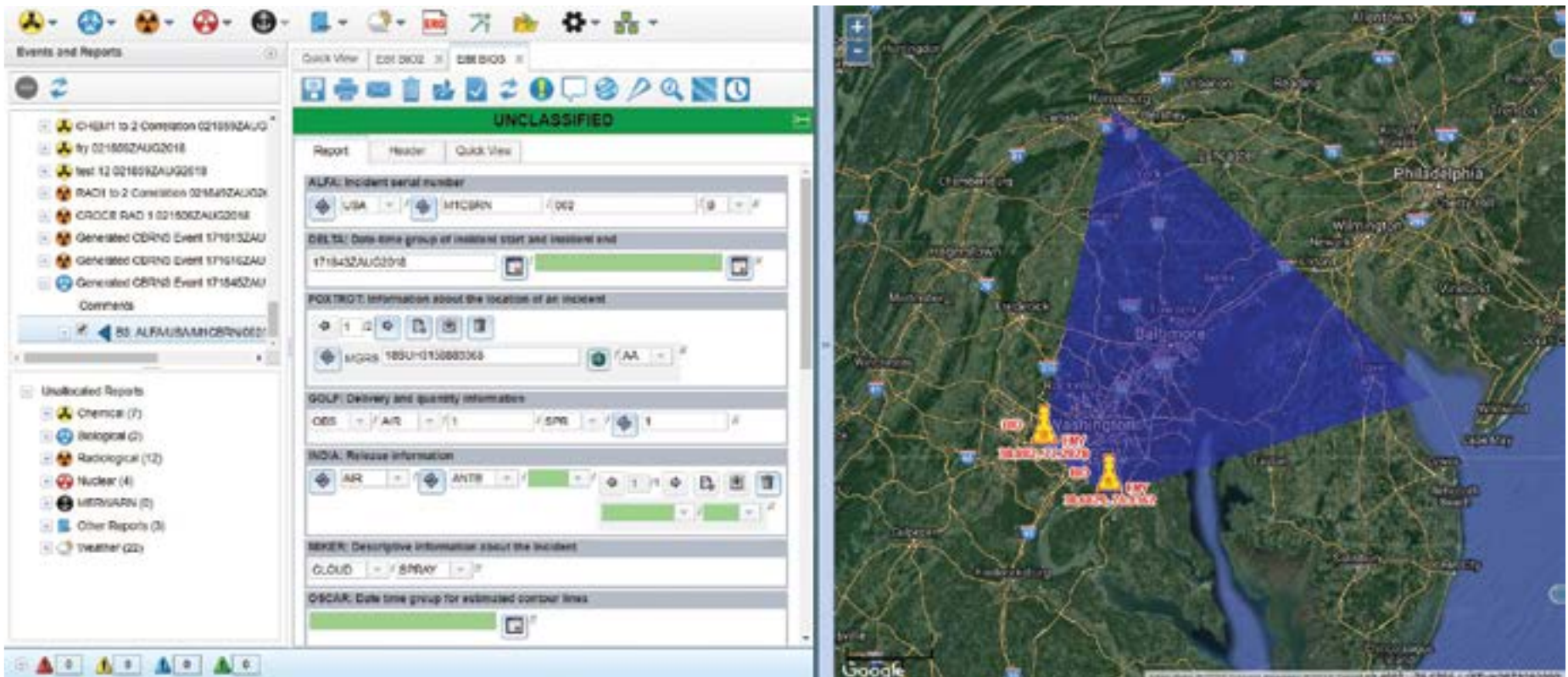
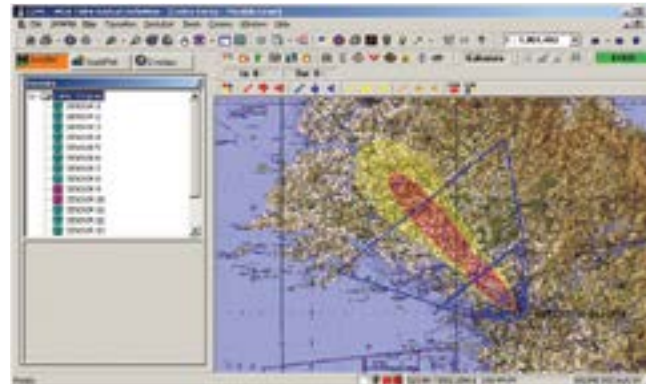
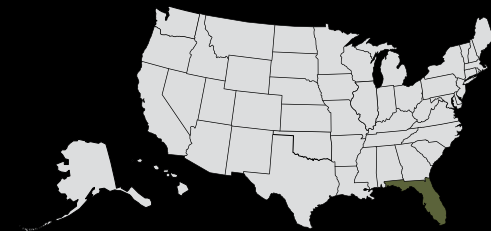
# JWARN 1

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Northrop Grumman Information Technology  
(Orlando, FL)



# Lightweight 155 mm Howitzer System (LW155)

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Lightweight 155 mm Howitzer (LW155) provides direct, reinforcing and general artillery fire support to maneuver forces. The M777 is a 155 mm towed Howitzer that was jointly developed by the Army and Marine Corps to replace the M198 Howitzer. The extensive use of titanium in all of its major structures makes the M777 7,000 pounds lighter than its predecessor with no sacrifice in range, stability, accuracy or mobility. The M777's independent suspension, smaller footprint and lower profile increase strategic deployability and tactical mobility. The system utilizes numerous improvements to enhance reliability and accuracy and to significantly increase system survivability.

The M777A2 variant is equipped with a Digital Fire Control System (DFCS) that includes an inertial navigation unit with Global Positioning System backup, allowing it to self-locate. The DFCS also includes a mission computer, displays and digital communications. Software upgrades to the system have incorporated the Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS), giving the M777A2 the capability to program and fire the 155 mm Excalibur and Precision Guidance Kit precision munitions.

## BENEFIT TO THE SOLDIER

The LW155 offers the warfighter improved survivability, lethality, deployability and mobility to counter threat forces.

## SPECIFICATIONS

- Weight: 10,000 pounds
- Emplace: Less than three minutes
- Displace: Less than three minutes
- Maximum range: 30 km (rocket assisted round)
- Rate-of-fire: Up to four rounds per minute

- Ground mobility: Family of Medium Tactical Vehicles, Medium Tactical Vehicle Replacement and 5-ton trucks
- Air mobility: CH-53D/E, CH-47D, MV-22, C-130, C-17 and C-5
- 155 mm compatibility: All fielded and developmental North Atlantic Treaty Organization munitions
- Digital and optical fire control: self-locating and pointing, digital and voice communications, and self-contained power supply

## PROGRAM STATUS

- **FY16-FY18:**
  - Awarded contract options and award terms for Long-Term Performance-Based Sustainment
  - Continued Tri-Lateral Sustainment discussions with Foreign Military Sales (FMS) customers Australia and Canada
  - Continue Infantry Brigade Combat Team fielding
  - Commence Digital Fire Control - Refresh initiative

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Production and Retrofit of Chrome Cannon Tube
  - Rapid Capabilities Office Long Range Cannon Program Assessment
  - DFCS refresh and modernization
  - India FMS Production (145 howitzers)
  - U.S. Army Production (18 howitzers)
  - Fielding of training devices
  - Support FMS customers Australia and Canada

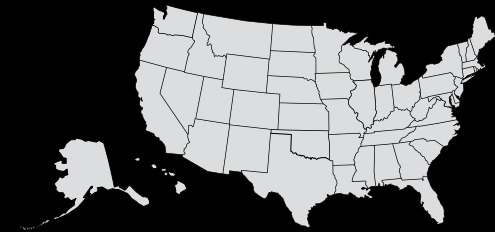
# LW155

## FOREIGN MILITARY SALES

Australia, Canada and India

## CONTRACTORS

BAE Systems (United Kingdom)



# Lightweight Laser Designator Rangefinder (LLDR) AN/PED-1, AN/PED-1A and AN/PED-1B

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Lightweight Laser Designator Rangefinder (LLDR) is a crew-served, long-range modular system designed for man-portable, day-and-night and all-weather use. Warfighters use the LLDR to acquire, precisely locate and engage targets with precisions using Global Position System (GPS)-guided and laser-guided munitions, and improve the effectiveness of engagement with unguided munitions.

LLDR 2H (AN/PED-1B) integrates a celestial navigation system with a digital magnetic compass, providing highly accurate target coordinates to allow the Soldier to call for fire with precision GPS-guided munitions. A Modification of In-Service Equipment program is ongoing that retrofits fielded LLDR 1 and 2 systems with the LLDR 2H precision targeting capability.

LLDR 3 is currently in development with a contract award anticipated for Fiscal Year 2018. LLDR 3 will significantly increase range performance over prior variants while also integrating Precision Azimuth Vertical Angle Module technology which will provide a 24/7 all-weather precision targeting capability.

## BENEFIT TO THE SOLDIER

Planned improvements to the system will provide 24/7 all-weather precision targeting and increased target-acquisition range, and support mounted operations to increase warfighter effectiveness.

## SPECIFICATIONS

- Target Designation:
  - Moving, day: Greater than or equal to 3 km (threshold) and 5 km (objective)
  - Moving, night: Greater than or equal to 3 km (threshold) and 5 km (objective)

- Stationary, day: Greater than or equal to 5 km (threshold) and 10 km (objective)
- Stationary, night: Greater than or equal to 4 km (threshold) and 5 km (objective)
- Target Location Error: Less than or equal to 10 m at 4 km (threshold) and 10 km (objective)
- Total System Weight: Less than 35 pounds

## PROGRAM STATUS

- **4QFY18:**
  - Award of LLDR 3 Indefinite Delivery, Indefinite Quantity 10-year contract
  - Capability Production Document approved

## PROJECTED ACTIVITIES

- **4QFY19:** Complete LLDR 2H Retrofit effort (1,279 total 2H systems fielded)
- **4QFY21:** First Unit Equipped with LLDR 3 systems





# LLDR

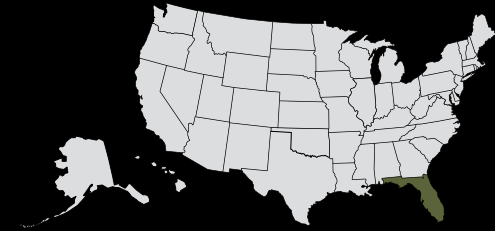
## FOREIGN MILITARY SALES

None

## CONTRACTORS

LLDR 1, 2, 2H: Northrop Grumman (Apopka, FL)

LLDR 3: TBD



# Medical Countermeasure Systems (MCS) – Chemical Defense Pharmaceuticals (CDP)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP) consists of the following components:

### Prophylaxis

- *Bioscavenger (BSCAV)* program is a transformational capability that fills an urgent capability gap in the warfighter's defense against nerve agents by development of an innovative broad spectrum nerve agent prophylactic that significantly reduces or eliminates the need for post-exposure antidotal therapy to prevent incapacitation and death from nerve agent exposure.

### Treatments

- *Advanced Anticonvulsant System (AAS)* program will provide an improved intramuscular autoinjector with a faster acting and more effective anti-seizure drug (Midazolam) for treatment after exposure to toxic nerve agent (replaces Convulsant Antidote for Nerve Agents (CANAs)). Food and Drug Administration (FDA) approval and initial fielding is expected in FY20.
- *Improved Nerve Agent Treatment System (INATS)* is an enhanced treatment regimen to counter the effects of nerve agent poisoning. INATS is a two-component program that includes a more effective oxime reactivator to replace 2-pyridine aldoxime methyl chloride (2-PAM), and adds a new centrally acting anticholinergic to the current treatment regimen to increase survival (nerve agent therapeutic; FDA licensure in FY23). A second component to INATS is a centrally acting medical countermeasure designed to treat the nerve agent effects on the central nervous system.
- *Rapid Opioid Countermeasures System (ROCS)* is a rapid prototype development program for a medical countermeasure against the operational exposure of a broad spectrum of pharmaceutical-based agents, which are highly

lethal at very low doses, and of which synthetic opioids (i.e., Fentanyl, Carfentanyl) is a high priority. FDA approval and initial fielding is expected in FY22.

- *Medical Radiation Countermeasures (MRADC)* is a multilayered suite of products that prevent, diagnose or treat acute radiation syndrome caused by exposure to ionizing radiation.

### Strengthening the Industrial Base

- *Alternative Autoinjectors Effort (ALT-AI)* has multiple efforts focused on identifying and qualifying additional manufacturing sources for autoinjector delivered nerve agent treatments (both developmental and fielded) to expand the industrial base for FDA approved life-saving Soldier-carried autoinjectors. This will better ensure consistent availability of these rescue treatments to the warfighter, U.S. government agencies and international partners.

### Legacy Fielded Products

- *Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP)* is a FDA approved pretreatment drug (Pyridostigmine Bromide) for use when operating under a nerve agent threat environment (for which use of Soman cannot be ruled out) that protects against Soman nerve agent poisoning and must be used with the post-exposure treatments atropine and 2-PAM.
- *Convulsant Antidote Nerve Agents (CANAs)* is a FDA approved intramuscular autoinjector of Diazepam to control seizures after exposure to toxic nerve agent.
- *Antidote Treatment Nerve Agent Autoinjector (ATNAA)* is a FDA approved intramuscular injection of Atropine and 2-PAM in a single autoinjector for treatment after onset of nerve agent poisoning symptoms.

## BENEFIT TO THE SOLDIER

CDP and therapeutics play a critical and strategic role in chemical and biological defense by providing the warfighter with shield-and-sustain capabilities against known or novel threats.

## SPECIFICATIONS

- System attributes established in requirements documentation

## PROGRAM STATUS

- **3QFY17:**
  - ALT-AI Emergency Use Authorization approved by FDA, allowing emergency use prior to final FDA approval
  - INATS-Oxime received verbal concurrence from FDA on a critical parameter needed for Clinical Trial
- **4QFY17:** BSCAV development of manufacturing process compatible with human injectable drug - FDA concurred.
- **2QFY18:** BSCAV manufactured drug in quantities to support Human Clinical Trials

## PROJECTED ACTIVITIES

- **1QFY18:** INATS Milestone B
- **1QFY19:** ALT-AI FDA approval for ALT-AI alternative Atropine Autoinjector
- **4QFY19:** INATS-Oxime Milestone B
- **2QFY20:** AAS FDA approval and Initial Operational Capability
- **3QFY20:** INATS-CA Milestone B
- **FY22:** ROCS FDA approval and initial fielding expected
- **FY23:** INATS FDA Licensure expected
- **2QFY23:** AAS Full Operational Capability

# MCS — CDP

## FOREIGN MILITARY SALES

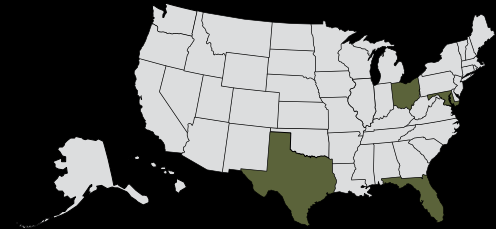
None

## CONTRACTORS

**INATS:** Southwest Research Institute (San Antonio, TX); Battelle Memorial Institute (Columbus, OH)  
**BSCAV:** DynPort Vaccine (Frederick, MD); Therapure Biopharma Inc. (Canada)

**ALT-AI:** Battelle Memorial Institute (Columbus, OH); Ology Bioservices (Alachua, FL); Emergent Biosolutions (Gaithersburg, MD); Rafa (Israel)

**LEGACY FIELDED PRODUCTS:** Meridian Medical Technologies (Columbia, MD); Valeant Pharmaceuticals International, Inc. (Canada)



# Medical Countermeasure Systems (MCS) – Joint Vaccine Acquisition Program (JVAP) and Bioscavenger

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Mission of Medical Countermeasure Systems (MCS) - Joint Vaccine Acquisition Program (JVAP) is to develop, produce and stockpile Food and Drug Administration (FDA)-licensed vaccine systems to protect the warfighter from biological agents. The JVAP portfolio consists of:

- *Anthrax Vaccine Absorbed* is the only Food and Drug Administration (FDA)-licensed anthrax vaccine in the United States that provides protection against cutaneous, gastrointestinal and aerosol infection by battlefield exposure to *Bacillus anthracis*.
- *Recombinant Plague Vaccine (PLG VAC)* is a highly purified polypeptide produced from bacterial cells transfected with a recombinant vector from the *Yersinia pestis* bacterium formulated with an aluminum hydroxide adjuvant and delivered intramuscularly to prevent pneumonic plague.
- *Recombinant Botulinum Toxin Vaccine A/B (BOT VAC A/B)* is comprised of nontoxic botulinum toxin heavy chain fragments of serotypes A and B formulated with an aluminum hydroxide adjuvant and delivered intramuscularly prior to potential exposure to botulinum toxin.
- *Smallpox Vaccine System* provides both the ACAM2000™ smallpox vaccine and the Vaccinia Immune Globulin, Intravenous (VIGIV) to vaccinate and protect the warfighter from potential exposure to smallpox. Both products are FDA approved.
- *Filovirus Vaccine (FILO VAC)* addresses an essential capability gap for protecting warfighters against aerosolized filovirus for which there is no current therapeutic. Target filovirus strains include Ebola Sudan, Ebola Zaire and Marburg.
- *Western, Eastern, Venezuelan Equine Encephalitis Vaccine (WEVEE VAC)* addresses an essential capability gap for protecting warfighters against aerosolized alphavirus for

which there is no current therapeutic. Target alphavirus strains include Venezuelan, Eastern and Western Equine Encephalitis.

## BENEFIT TO THE SOLDIER

JVAP provides protection to the warfighter against aerosolized biological warfare agents.

## SPECIFICATIONS

- System attributes established in requirements documentation

## PROGRAM STATUS

- **FY16:**
  - PLG VAC FDA granted Orphan Drug Designation resulting in cost reductions incentives
  - FILO VAC Completed Ebola vaccine Phase 1 human clinical trial
- **FY18:**
  - BOT VAC A/B Milestone C
  - WEVEE VAC Other Transaction Authority agreement award for VEE development
  - FILO VAC Initiation of VEE Phase 1 human clinical trial
  - Initiation of Ebola vaccine Phase 2 human clinical trial

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Plague VAC: Consistency lot manufacturing data, End of Phase 2 Clinical Trial data, Pre-Biologics License Application submission data, End of Phase 2 Meeting, Milestone C, FDA Licensure
  - Botulinum VAC: Consistency lot manufacturing data, End of Phase 2 Clinical Trial data, Pre-BLA submission data, Milestone C, FDA Licensure

- Filovirus VAC: Capability Development Document (CDD) Validation, Phase 1 Clinical Trial safety and immunogenicity data, Proof of concept animal efficacy data, Milestone B
- WEVEE VAC: CDD Validation, Pre-Investigational New Drug submission data, End of Phase 1 Clinical Trial data, Proof of Concept animal efficacy data, Good Manufacturing Practices Drug Product stability test data, Milestone B



## MCS — JVAP

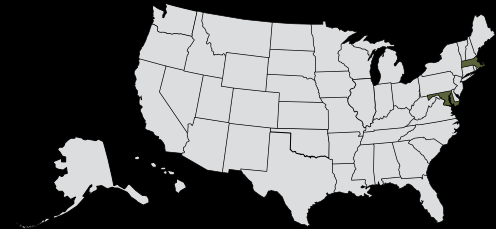
### FOREIGN MILITARY SALES

Canada and United Kingdom

### CONTRACTORS

**PLG VAC and BOT VAC A/B:** DynPort Vaccine (Frederick, MD)

**SVS:** Acambis plc (Cambridge, MA) and Cangene Corporation (Canada)



# Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
**Operations & Support**

## DESCRIPTION

The Mine Protection Vehicle Family (MPVF) consists of the Medium Mine Protected Vehicle (MMPV) Type I and II, the Husky Vehicle Mounted Mine Detection (VMMD) system, and the Buffalo Mine Protected Clearance Vehicle (MPCV). All are blast-protected with a V-shaped hull.

MMPV Type I (Panther) supports Explosive Ordnance Disposal Companies and Chemical Biological Response Teams.

The Husky VMMD, Buffalo MPCV and MMPV Type II (RG-31) support Engineer Units in Brigade Engineer Battalions and route and area clearance operations. VMMD is a vehicle-mounted mine-detection and lane-proofing system capable of finding and marking metallic explosive hazards. The MPCV is capable of interrogating and classifying suspected explosive hazards, including improvised explosive devices, with its articulating arm and camera, which can remotely interrogate a suspected explosive hazard and allow the crew to confirm, deny and classify the hazard. The MMPV Type II is a command and control vehicle with various attachments used to detect and neutralize potential explosive hazards

The MCV is a vehicle designed to clear large areas of anti-tank and anti- personnel mines by means of a rotating flail.

EHP capabilities will counter the full spectrum of conventional and asymmetric explosive hazards including surface-laid, buried and concealed landmines, IED, Explosively Formed Penetrators, Unexploded Ordnance, battlefield munitions and booby traps to include associated trigger mechanisms.

## BENEFIT TO THE SOLDIER

These systems provide the warfighter with effective, reliable and affordable blast protection by interrogating and classifying suspected explosive hazards while providing force protection to defeat the full spectrum of worldwide explosive hazards.

## PROGRAM STATUS

- **FY16-18:**
  - Supported 19 separate Operational Needs Statements for MPVF totaling approximately 500 vehicles
  - RECAP/RESET production at Letterkenny Army Depot (LEAD), PA, for the Husky, Buffalo, MMPV Type I and MMPV Type II
- **3QFY16:** Completed fielding of the MCV
- **4QFY16:**
  - Full Materiel Release (FMR) for MMPV Type I
  - Conditional Materiel Release and First Unit Equipped for MMPV Type II
  - Milestone C for EHP Blower
- **3QFY17:** Milestone C for EHP WNS
- **1QFY18:** Successfully completed Follow-on Operational Test for MMPV Type II with Multifunctional Video Display
- **2QFY18:** Milestone C for EHP Roller
- **4QFY18:** MMPV Type II to obtain FMR

## PROJECTED ACTIVITIES

- **FY19-21:** MMPV Type II: RESET/RECAP ongoing at Letterkenny Army Depot
- **1QFY19:** EHP Blower: Obtain FMR and begin Fielding
- **3QFY19:** EHP WNS: Obtain FMR and begin Fielding
- **2QFY20:**
  - Buffalo and Husky: Complete Fielding
  - EHP Roller: Obtain FMR and begin Fielding
- **4QFY20:** MMPV Type I Conversion: obtain FMR
- **1QFY21:** MMPV Type I Conversion: complete Fielding

- **2QFY22:** EHP Blower: Complete Fielding
- **2QFY23:** MMPV Type II: Complete Fielding

## SPECIFICATIONS

	MMPV Type I	MMPV Type II	MPCV Buffalo A2	VMMD Husky	MCV
Personnel Capacity	5	4	6	1	2
Operational Length	349 inches	276.8 inches	323 inches	291.6 inches	392.4 inches
Operational Width	124 inches	107.1 inches	106 inches	100.8 inches	189.5 inches
Operational Height	136 inches	141.4 inches	156 inches	122 inches	99.3 inches
Gross Vehicle Weight	74,000 pounds	35,000 pounds	48,500 pounds	15,240 pounds	42,628 pounds



# MPVF, MCV, EHP

## FOREIGN MILITARY SALES

**MPCV:** United Kingdom

**VMMD:** Canada, Kenya and Australia

**MCV:** Austria

## CONTRACTORS

**MMPV Type I (Panther):** BAE Systems (York, PA); RECAP/RESET performed at LEAD, PA

**MMPV Type II (RG-31):** General Dynamics Land Systems-Canada (Canada); RECAP/RESET performed at LEAD, PA

**MPCV:** General Dynamics Land Systems (Sterling Heights, MI); RECAP/RESET performed at LEAD, PA

**VMMD:** Critical Solutions International, Inc.

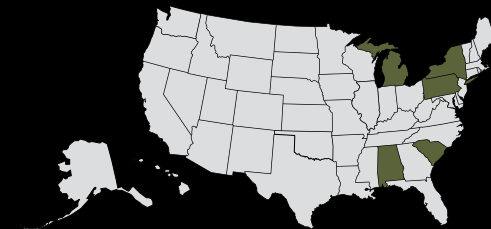
(Charleston, SC); RECAP/RESET performed at LEAD, PA

**M1271 MCV:** Hydrema (Denmark)

**EHP Debris Blower:** Buffalo Turbine (Springville, NY)

**EHP WNS:** GS Engineering (Houghton, MI)

**EHP Mine Roller (Prototype):** Anniston Army Depot (Anniston, AL)



# Nett Warrior (NW)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Nett Warrior (NW) is an integrated dismounted leader Situational Awareness (SA) system used during combat operations. The system provides unparalleled SA to the dismounted leader, allowing for faster and more accurate decision-making in the tactical fight. With advanced navigation, SA and information-sharing capabilities, leaders are able to avoid fratricide and are more effective and lethal in the execution of their combat missions.

The NW system is connected through secure, tactical radios, and other transports that share information from one NW to another. Additionally, the NW smart device displays leader locations, tactical imagery and tactical graphics.

Tactical radios and other transports connect the NW-equipped leader to higher-echelon data and information products to assist in decision-making and situational understanding. All of this allows the leader to easily see, understand and interact in the method best suited to the user and the particular mission.

## BENEFIT TO THE SOLDIER

NW employs a system-of-systems approach, optimizing and integrating capabilities while reducing the Soldier's combat load and logistical footprint. It also provides overmatch operational capabilities to all ground combat leaders and small-unit operations.

## SPECIFICATIONS

- Commercial off-the-shelf smartphone end-user device with cable (less than 2 pounds) for connection to multiple transports, such as Wi-Fi, 4G/LTE, tactical radios (running different waveforms like Tactical Scalable Mobile ad-hoc network waveform, ANW2 network and Soldier Radio

waveform). The system can operate eight to 24 hours depending on power source connection configuration.

- NW, U.S. government-owned open software architecture (core is Assault Android Tactical Assault Kit) has published a Software Development Kit that permits rapid application development and integration. The software also enables the expansion of this platform to other warfighting functions and/or handheld requirements.

## PROGRAM STATUS

- **4QFY17:** Full Rate Production Decision
- **1QFY18:** 1st Security Assistance Brigade (SFAB) Fielding
- **3QFY18:** Saber Striker Multination Training exercise

## PROJECTED ACTIVITIES

- **4QFY18:** 2nd SFAB Fielding



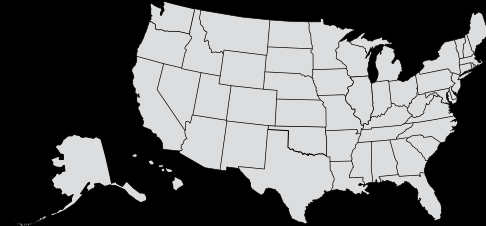
# NW

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Government is the system integrator with various vendors providing components.



# Next Generation Chemical Detector (NGCD)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Army Materiel Systems Analysis Activity Technical Report No. TR-2013032, June 2013, determined that there was a need for multiple systems to achieve the required capabilities for the Next Generation Chemical Detector (NGCD). NGCD was separated into four distinct programs providing different capabilities of systems. The programs are: Aerosol Vapor Chemical Agent Detection (AVCAD), Aerosol and Vapor Detector Alarm; Proximity Chemical Agent Detection (PCAD), Survey Detector; Multi Phase Chemical Agent Detection (MPCAD), Sample Collection and Analysis; and Compact Vapor Chemical Agent Detection (CVCAD), Man-Worn and Unmanned Detector.

NGCD programs collectively will detect and identify nontraditional agents (NTA), chemical warfare agents (CWA), toxic industrial chemicals (TIC) and other hazards in the air and on surfaces. These programs will improve CWA/TIC selectivity and sensitivity in multiple environments. The NGCD programs will sample, detect, identify and quantify traditional and nontraditional chemical and TIC vapor, liquid, solid and aerosol hazards. The warfighter will be able to characterize Chemical, Biological, Radiological and Nuclear (CBRN) environment in air and water as well as on land, personnel, equipment and facilities.

NGCD programs will support manned and unmanned platform integration and the following combat weapons of mass destruction (WMD) military mission areas: CBRN passive defense; WMD interdiction; WMD elimination and WMD consequence management.

## BENEFIT TO THE SOLDIER

The four separate NGCD programs will provide capabilities and sensors to the warfighter with improved detection, consequence management and reconnaissance, and WMD interdiction.

## SPECIFICATIONS

- AVCAD: Handheld man-portable, battery-operated, aerosol and vapor detection
- PCAD: Handheld man-portable, battery-operated, liquid/solid surface detection
- MPCAD: Two-man-portable, shore-and-battery-powered, collector and analyzer with very low detection levels
- CVCAD: Man-worn, battery-operated with integration on unmanned ground system and unmanned aerial system platforms
- All detect NTA, CWA and TIC

## PROGRAM STATUS

- **FY16-FY18:**
  - AVCAD: Engineering Manufacturing and Development (EMD) Phase
  - PCAD: Technology Maturation and Risk Reduction Phase
  - MPCAD: Pre-EMD Phase
  - CVCAD: Material Solution Analysis (MSA) Phase
- **1QFY18:** AVCAD Milestone B awarded: Initial Operational Capability (IOC) FY23
- **4QFY18:** MPCAD Milestone B Award: IOC FY23

## PROJECTED ACTIVITIES

- **FY21:** CVCAD Milestone A: IOC FY26
- **FY25:** PCAD Milestone B: IOC FY28

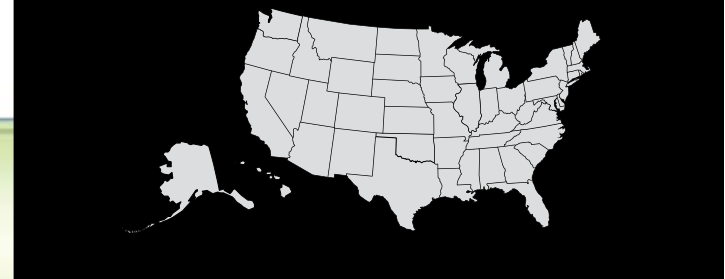
# NGCD

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



NGCD-1



Differential Mobility Spectroscopy (DMS)



Rapid Thermal Modulation Ion Spectrometry



Compact Ion Trap Mass Spec

NGCD-2



Short Wave IR (SWIR)  
Hyperspectral Imagery (HSI)



Long Wave IR (LWIR) HSI  
and Raman (785 nm)



LWIR HSI, and Raman (1064 nm),  
Quantum Cascade Laser (QCL) IR

NGCD-3



Ion Trap Mass Spec



Triple Quad Mass Spec



GC-DMS and Raman (1064 nm)

NGCD-4

**Colorimetric  
Nano-Electrochemical  
Resistive Sensing  
Metal Organic Framework**

# Next Generation Squad Weapons (NGSW)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Next Generation Squad Weapons (NGSW) consist of the NGSW-Automatic Rifle (NGSW-AR) and the NGSW-Rifle. The NGSW-AR is the planned replacement for the M249 Squad Automatic Weapon in Brigade Combat Teams, echelons above Brigade Sapper and Mobility Augmentation Companies as an initial priority. It will combine the firepower and effective range of a machine gun with the precision and ergonomics of a rifle, yielding capability improvements in accuracy, range and lethality. The weapon will be lightweight, fire lightweight ammunition and have reduced acoustic and flash signature. Soldiers will employ the NGSW-AR against close-, mid- and extended-range targets in all terrains and conditions.

The Acquisition Objective is for 85,986 systems with an initial Acquisition Procurement Objective of 17,972 systems.

## BENEFIT TO THE SOLDIER

The NGSW-AR combines the firepower and range of a machine gun with the precision and ergonomics of a rifle, yielding significant capability improvements in accuracy, range, signature management and lethality.

## SPECIFICATIONS

- NGSW-AR will be compatible with legacy optics and night vision devices and will integrate with improved, more capable accessories and enablers as they develop
- Other specifications to be determined

## PROGRAM STATUS

- **FY16:** Small Arms Ammunition Configuration Study completed
- **FY17:** Army defines options to maintain small arms overmatch
- **FY18:** Squad Designated Marksman Rifle/Advanced Armor Piercing Ammunition selected as near-term solution

## PROJECTED ACTIVITIES

- **FY19:** NGSW Program initiation planned
- **FY22:** First Unit Equipped

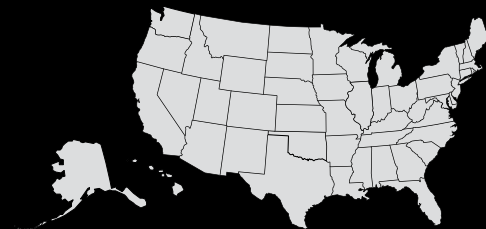
# NGSW

## FOREIGN MILITARY SALES

None

## CONTRACTORS

None



**PROGRAM**  
**UNDER DEVELOPMENT**

# One Semi-Automated Force (OneSAF)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

One Semi-Automated Force (OneSAF) is a computer-generated forces simulation that provides entity-level models and behaviors that are both semi-automated and fully automated applications designed to achieve Army readiness. As a cross-domain simulation, OneSAF supports the training, test and evaluation, analysis, intelligence, acquisition and experimentation communities by providing the latest physics-based modeling and data, enhanced data collection, and reporting capabilities. OneSAF models real-world representations of platforms, Soldiers, equipment, logistical supplies, communications systems and networks, emerging threats and aviation assets to achieve the level of fidelity required for a particular application or scenario.

OneSAF was created to be uniquely capable of simulating aspects of the urban operating environment and its effects on simulated activities and behaviors. OneSAF is unique in its ability to model unit behaviors from fire team to company level for all units in both combat and noncombat operations. Intelligent, doctrinally correct behaviors and a range of constructive, gaming and virtually based user interfaces are provided to increase the span of control for workstation operators.

## BENEFIT TO THE SOLDIER

OneSAF provides a transparent training environment for today's commanders and their battle staffs by utilizing current Mission Command Systems, and eliminates the need for multiple simulation tools across analysis, experimentation, test and evaluation, training, intelligence and acquisition modeling and simulation communities.

## SPECIFICATIONS

- Software-only program
- Uses controlled unclassified information
- Computer-generated forces simulation
- Standards-based architecture

## PROGRAM STATUS

- **FY17:**
  - Network Integration Event (NIE) 17.2 Technical Integration Event (TIE) support
  - Draft Request For Proposal (RFP) Released for Software Production Lot III
  - v8.7 U.S. Army Training and Doctrine Command Project Office Assessment complete
- **3QFY16-1QFY17:** Entity Simulation Service/Multi-Resolution Federation V8.1 TIE and Validation event
- **4QFY17:**
  - NIE event support
  - v8.7 release
  - Battle Laboratory Collaborative Simulation Environment (BLCSE) Unified Challenge (UC) FY17 event support
- **1QFY18:** RFP released for OneSAF Production and Support contract
- **4QFY18:**
  - BLCSE UC FY18 Event
  - v8.8 release

## PROJECTED ACTIVITIES

- **FY19:** Joint Warfighter Assessment 19 support
- **1QFY19:**
  - NIE 18.2
  - OneSAF Production and Support Contract Award
- **4QFY19:** v8.9 release
- **FY19-FY20:** OneSAF Entity Simulation Service/Joint Land Component Constructive Training Capability v8.1 fielding
- **FY20:** v9.0 release
- **FY21:** v10.0 release
- **FY22:** v11.0 release
- **FY23:** v12.0 release

# OneSAF

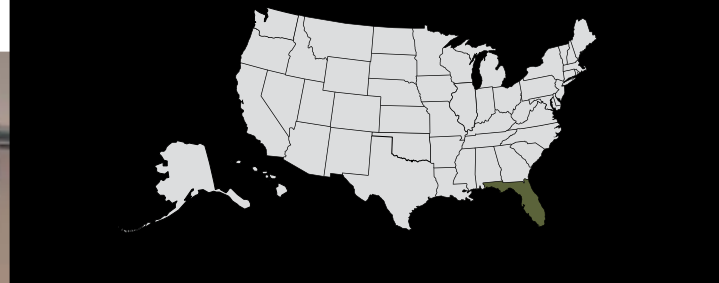
## FOREIGN MILITARY SALES

Canada, Czech Republic, Egypt, Israel, Singapore, Slovakia and United Kingdom

## CONTRACTORS

**Integration, Interoperability and Support:** Cole Engineering Services, Inc. (Orlando, FL)

**Software Production:** Leidos (Orlando, FL)



# Persistent Surveillance Systems-Tethered (PSS-T)

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Persistent Surveillance Systems-Tethered (PSS-T) delivers tactical and fixed site aerostats to exploit a full range of Intelligence, Surveillance and Reconnaissance (ISR), force protection and communications capabilities to joint, interagency and multinational organizations.

## BENEFIT TO THE SOLDIER

PSS-T provides combat-proven capability that addresses two of the current intelligence capability gaps in the collection and intelligence enterprise. PSS-T is a highly persistent low-altitude platform that offers inherent cost savings per flight hour as compared to current manned and unmanned airborne ISR assets.

## SPECIFICATIONS

- Retains medium and large aerostat platforms to meet future expeditionary and contingency needs for persistent surveillance, information collection, force protection enhancement and as a platform for Army Aerial Layer Network Transport
- Highly persistent and flexible multisensor information collection platform that will be integrated with other aerial and unattended ground sensor systems to provide slew-to-cue capability
- Provides 360 degree detection, surveillance, monitoring and targeting capability through real-time full motion video, electro-optical/infrared and wide area, all-weather detection of moving vehicle and dismount targets

## PROGRAM STATUS

### • Current:

- Participating in the United Vision 18 international Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance exercise by connecting to the Battlefield Information Collection and Exploitation Systems network via Very Small Aperture Terminal from Yuma Proving Ground, Arizona
- Fielding a 28M aerostat variant to Afghanistan in support of an operational needs statement to address PSS-T survivability issues

## PROJECTED ACTIVITIES

### • FY19-FY23:

- Incrementally modernize aerostat systems to mitigate obsolescence, increase effectiveness and reduce breakaways
- System modernization will provide survivability and capability improvements to the tether and envelope and will reduce sustainment costs. Common mooring platforms will support various envelope sizes, thus decreasing the logistical footprint which will address obsolescence and create an adaptive interchangeable platform that could support both short- and long-term missions



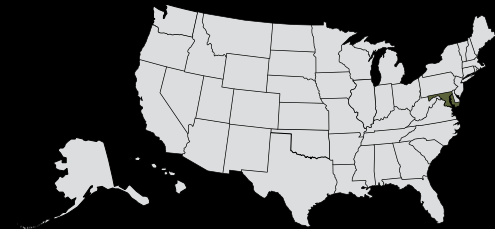
# PSS-T

## FOREIGN MILITARY SALES

Saudi Arabia

## CONTRACTORS

Bravura Information Technologies Inc. (Aberdeen, MD)



# Precision Guidance Kit (PGK)

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Precision Guidance Kit (PGK) technology is state-of-the-art and provides a first-of-its-kind capability. PGK contains a Global Positioning System (GPS) guidance kit with fusing functions and an integrated GPS receiver to correct the inherent errors associated with ballistic firing solutions, reducing the number of artillery projectiles required to attack targets. The increase in efficiency that PGK's "near-precision" capability provides allows operational commanders to engage assigned targets and rapidly achieve desired effects while minimizing collateral damage. PGK currently has two Department of Defense Identification Codes (DODIC), NA28 and NA29. The 2,399 kits that were procured for early fielding under an Urgent Materiel Release to Operation Enduring Freedom have the NA28 DODIC. The PGK currently being procured in Low Rate Initial Production has the NA29 DODIC. PGK is also developing an increased capability to operate in a GPS-degraded environment and to be compatible with the future M-Code GPS architecture.

## BENEFIT TO THE SOLDIER

PGK provides improved fire support to the maneuver force commander through effectively reducing target delivery error of conventional artillery munitions, and reduces the number of projectiles required to execute a fire mission.

## SPECIFICATIONS

- Demonstrated accuracy: Less than 30 meters circular error probable
- Compatible with the M795 and M549A1 155 mm high-explosive projectiles
- Mission-critical flight data is inductively loaded into PGK using the Enhanced Portable Inductive Artillery Fuze Setter

## PROGRAM STATUS

- **3QFY16:** Full Rate Production Decision
- **4QFY17:** PGK Modernization Concept Development complete
- **3QFY18:** 23 consecutive production Lot Acceptance Tests completed to date

## PROJECTED ACTIVITIES

- **2QFY19:** PGK-M Milestone B
- **3QFY19:** PGK-M Engineering and Manufacturing Development award
- **FY23:** PGK-M Milestone C



# PGK

## FOREIGN MILITARY SALES

Fielded with multiple countries — names for official use only and not for public disclosure.

## CONTRACTORS

**NA29 Production and PGK-M Concept**

**Development:** Northrop Grumman (Plymouth, MN)

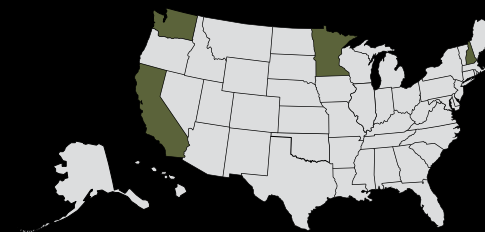
**PGK-M Concept Development:** General Dynamics

Ordnance and Tactical Systems (Bothell, WA); BAE

Systems (Nashua, NH)

**PGK-M GPS/AJ Development:** L3 IEC

(Anaheim, CA)



# Prophet

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The latest version of Prophet, called Prophet Enhanced, is a dedicated all-weather, 24-hour, near-real-time, ground-based tactical Signals Intelligence (SIGINT) and Electronic Warfare (EW) system providing force protection and situational awareness through technologically advanced intelligence support to Brigade Combat Team (BCT) and Expeditionary – Military Intelligence Brigade (E-MIB) commanders. One Prophet system is fielded to the multifunctional teams (MfT) with three MfTs per BCT and eight MfTs per E-MIB. Prophet Enhanced systems provide commanders flexible, modular components for their mission.

Prophet Enhanced is a non-platform-dependent, modular system that will allow easy integration onto a vehicle. Each sensor supports stationary, dismounted, on-the-move (mobile) and manpack operations. Prophet's mobility and modularity allows supported units to easily reposition its collection capability based on evolving tactical situations.

Prophet Enhanced has networked communications via a wide-band, beyond-line-of-sight capability. This capability allows the vehicles to operate at extended distances from each other or from other nodes on the battlefield. Prophet Enhanced is fielded as a two-vehicle solution with a common server, processing architecture, encryption devices, etc., in both vehicles; each vehicle supports operations on three classification networks and domains.

Prophet Enhanced is interoperable on the Global SIGINT Enterprise, delivering collected data to common databases for access by the intelligence community.

## BENEFIT TO THE SOLDIER

Prophet Enhanced provides the warfighter with critical situational awareness on the availability and synergy of objective intelligence data access and processing. It also provides high-value targeting through precision geolocation. Prophet Enhanced mobility and multimode employment (dismounted, mounted on-the-move and manpack) enables the commander flexibility in a dynamic threat environment.

## SPECIFICATIONS

- Classified

## PROGRAM STATUS

- **FY16-FY18:**
  - Developed a Stryker-based Prophet Enhanced System for fielding in FY19
  - Engaged in numerous risk reduction efforts to inform the next generation Terrestrial SIGINT and EW system
  - Pace the threat with yearly technology insertions

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Continue modification of Prophet Enhanced systems to the current baseline on Mine Resistant Ambush Protected All Terrain Vehicles (99 total)
  - Continue to displace Spiral 1 and Spiral 1+ systems from the Active Army to the Army National Guard and United States Army Reserve

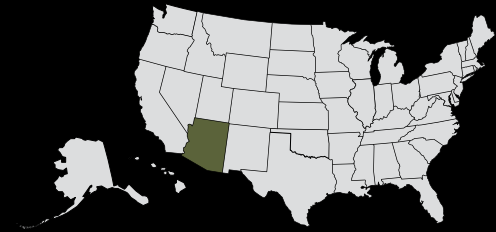
# Prophet

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Dynamics Mission Systems (Scottsdale, AZ)



# Pseudolites

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Pseudolites are satellite-like transmitters that provide terrestrial and airborne radio navigation Global Positioning System (GPS)-like service in electronically or physically challenged environments using a high-power signal to support Brigade Combat Team area of operations.

This program supports the Assured Positioning, Navigation and Timing (A-PNT) Cross-Functional Team (CFT), which has been established to support the modernization priorities of the Army.

## BENEFIT TO THE SOLDIER

Pseudolites will offer a deployable airborne configuration that provides a GPS-like service in challenged environments, allowing continued operations of A-PNT enabled systems. It broadcasts a signal similar to GPS that can supplement or replace those from GPS satellites when they are not accessible. Existing technology can enable programmed receivers to determine position, velocity and time in a jamming environment.

## SPECIFICATIONS

- Capability Development Document and associated Requirements Development Package in development

## PROGRAM STATUS

- **FY16-FY18:** Pseudolites Risk Reduction and Prototype Development
- **1QFY18:**
  - A-PNT CFT established
  - Pseudolites Government Laboratory Test
- **2QFY18:**
  - A-PNT CFT Roadmap Approved
  - Pseudolites Test Readiness Review for Government Field Test
- **3QFY18:** Pseudolites Government Field Test

## PROJECTED ACTIVITIES

- **2QFY19:** Other Transaction Authority Contract Award for Requirements Development Package 1
- **1QFY21:** Development Operations Assessment
- **2QFY21:** Production Decision Point
- **4QFY21:** Achieve Initial Operational Capability

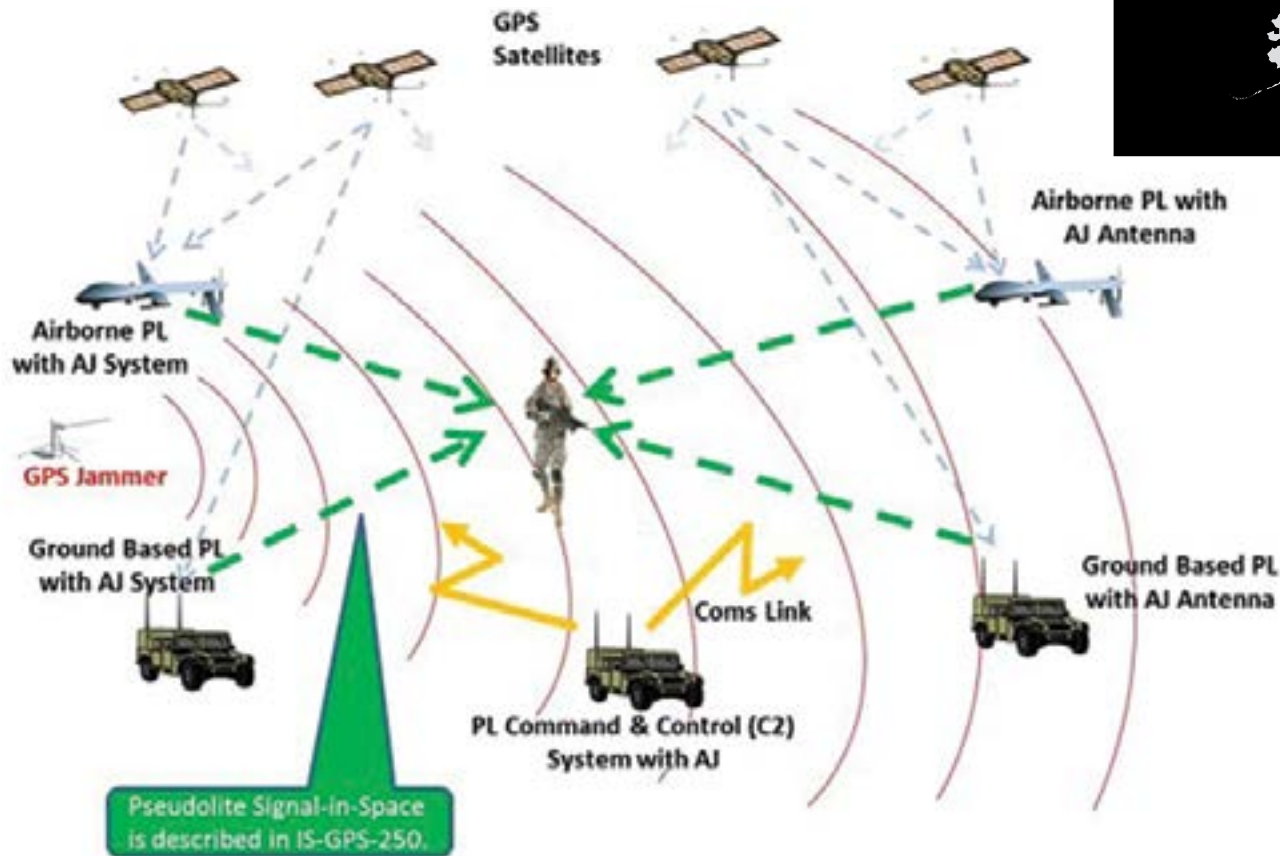
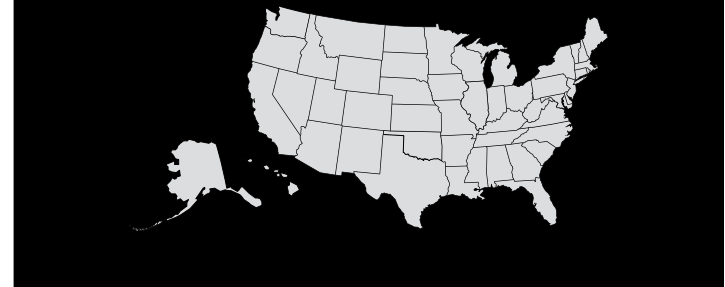
# Pseudolites

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



# Range Radar Replacement Program (RRRP)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Range Radar Replacement Program (RRRP) replaces outdated instrumentation radar systems at Aberdeen Test Center, Maryland; Redstone Test Center, Alabama; Yuma Test Center, Arizona; and White Sands Test Center, New Mexico. This effort responds to a need defined by the Army Test and Evaluation Command to improve range tracking instrumentation while eliminating obsolescence, stabilizing operation and sustainment costs, and improving mobility and remote operations.

RRRP Block I will satisfy the Test Capability Requirements Document (TCRD) addendum and bridge capability gaps to Block II. Block I Phase I includes a service life extension for FPS-16 (long-range, single object tracking radars). Block I Phase II includes medium-range, multiple object tracking radars (MPS-39), and short-range radars. Block I Phase III includes long range radars. Block II will completely satisfy TCRD requirements with long range radars.

## BENEFIT TO THE SOLDIER

RRRP will provide the capability to test current and future Army weapon systems, providing critical test data to inform system development decisions and reducing the risk to operational forces prior to fielding.

## SPECIFICATIONS

- Short-Range Radar : 0-20 miles
- Medium-Range Radar (MRR): 0-30 miles
- Long-Range Radar (LRR): 30-80 miles

## PROGRAM STATUS

- **4QFY16:**
  - TCRD and addendum approved
  - FPS-16 recapitalization Contract Award

- **2QFY17:** Acquisition Strategy Approval, Block II Contract Award
- **3QFY17:** TCRD addendum AN/MPS-39 Multiple Object Tracking Radar (MOTR) approval
- **4QFY17:** MRR Contract Award
- **FY18:** Contract awards for AN/MPS-39 MOTR recaps, MRRs and LRRs

## PROJECTED ACTIVITIES

- **FY19:** Delivery of 4 AN/FPS-16 recaps and 3 MRRs
- **FY20:** Delivery of 4 MRRs, 1 AN/MPS-39 MOTR recap and 2 LRRs
- **FY21:** Delivery of 11 MRRs and 2 AN/MPS-39 MOTR recaps
- **FY22:** Delivery of 2 LRRs



# RRRP

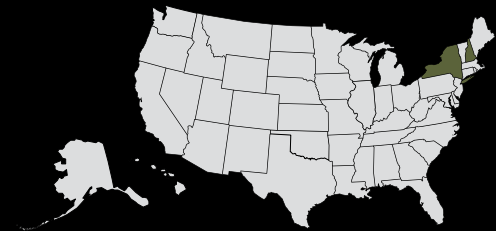
## FOREIGN MILITARY SALES

None

## CONTRACTORS

**AN/FPS-16 Recapitalization:** BAE Systems (Nashua, NH)

**Medium Range Radars:** Lockheed Martin (Owego, NY)



# Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) is the Army's protected satellite communications system, which enables commanders at brigade-and-higher levels to operate in an electronic warfare threat environment that includes radio frequency signal interference (jamming), signal detection and geographic location threats. Additionally, the SMART-T can survive the effects of a High-Altitude Electromagnetic Pulse produced by nuclear detonations and can operate and survive in a biological and chemical environment.

## BENEFIT TO THE SOLDIER

SMART-T makes it possible for units to reliably and securely extend the range of their network in such a manner that communications cannot be jammed, detected or intercepted, enabling Soldiers to send critical text, data, voice and video communications beyond their area of operations.

## SPECIFICATIONS

- Interoperable with advanced extremely high-frequency satellite constellation
- Enhanced system interfaces
- Low and Medium Data Rate capability for voice and data transmission
- Interoperable with Military Strategic and Tactical Relay (MILSTAR) satellite, Ultra High-Frequency Follow-On, Extremely High-Frequency Military-Standard (MIL-STD) 1582D and MIL-STD 188-136 compatible payloads
- Anti-jam and anti-scintillation (nuclear environment) communications

## PROGRAM STATUS

- **FY16-FY18:** Performed sustainment planning activities and task execution in preparation for transitioning SMART-T to Sustainment in FY18

## PROJECTED ACTIVITIES

- **FY19-FY23:** Perform upgrades to add Ethernet IP cable interface for greater interoperability with Warfighter Information Network-Tactical routers

# SMART-T

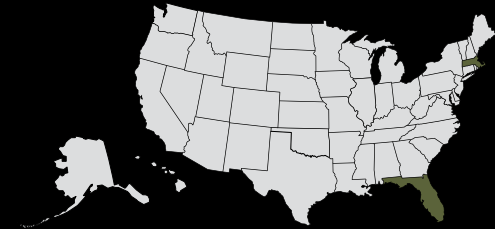
## FOREIGN MILITARY SALES

Canada and Netherlands

## CONTRACTORS

**Production and Spares:** Raytheon (Largo, FL)

**Engineering Support, Management:** Raytheon (Marlborough, MA)



# Sentinel Aerial Surveillance Radar — AN/MPQ-64

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The AN/MPQ-64 Sentinel provides persistent air surveillance and fire control quality data through command and control systems to defeat Unmanned Aerial Systems (UAS), cruise missiles and fixed- and rotary-wing aircraft threats.

The system features an X-Band, 360-degree phased array air defense radar with a 75-km instrumented range. It is equipped with Electronic Counter-Counter-Measure capabilities, a Mode 5 Identification Friend or Foe subsystem for positive identification of friendly aircraft, and Non-Cooperative Target Recognition capabilities to identify threat aircraft. Sentinel is trailer-mounted, pulled by either a High Mobility Multipurpose Wheeled Vehicle or an M1082 Family of Medium Tactical Vehicles truck. The system generator with a command and control interface is mounted on the vehicle.

Sentinel interfaces with the Integrated Air and Missile Defense (IAMD) Battle Command System architecture, the Forward Area Air Defense Command and Control System, and the National Capital Region Integrated Air Defense Command and Control System. Sentinel also interfaces with the Counter-Rocket, Artillery, Mortar (C-RAM) Increment I system to protect friendly aircraft during engagement of incoming indirect fire.

Sentinel is undergoing modifications to further enhance its detection, classification, identification and reporting capability against UAS, RAM and cruise missiles. Additional hardware modifications will include the upgrade of the Signal Data Processor and transition to Active Electronically Scanned Array technology.

## BENEFIT TO THE SOLDIER

Sentinel provides persistent air surveillance and fire control quality data to the warfighter through command and control

systems to defeat UAS, cruise missiles and fixed- and rotary-wing aircraft threats.

## SPECIFICATIONS

- All-weather, 360-degree capability
- Range: 75 km
- Three-dimensional X-Band radar
- Supports current AMD systems, C-RAM and the Indirect Fire Protection Capability Increment 2-Intercept (IFPC Inc 2-I) System

## PROGRAM STATUS

- **3QFY18:** Software v5.8.6 Urgent Materiel Release to National Capital Region
- **4QFY18:** Production contract awarded for the Signal Data Processor

## PROJECTED ACTIVITIES

- **4QFY18-4QFY19:** Sentinel support to IFPC Flight Tests and Limited User Test
- **2QFY19-3QFY20:** Sentinel support to IAMD Flight Tests and Limited User Test
- **2QFY20:** Sentinel Software v5.8.6.1 and Signal Data Processor Hardware Full Materiel Release

# Sentinel — AN/MPQ-64

## FOREIGN MILITARY SALES

Egypt, Iraq, Latvia, Lithuania and Turkey

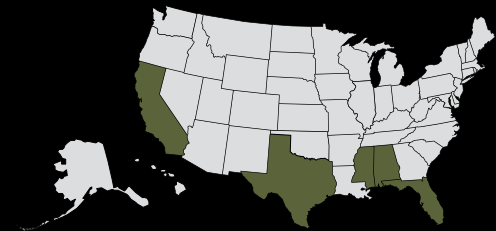
The Cruise Missile Defense Systems Project Office established a Sentinel Radar Software International Engineering Services Program with six partner nations: Chile, Egypt, Finland, Netherlands, Norway and Oman

Direct Commercial Sales (hardware) with classified software sold via Foreign Military Sales (U.S. government controls Sentinel software): Finland, Mexico, Netherlands, Norway, Oman and Spain

## CONTRACTORS

Thales Raytheon Systems (Fullerton, CA; El Paso, TX; Forest, MS; Largo, FL)

**SETA Contract:** IRTC (Huntsville, AL)



# Spider – Command Destruct Networked Command Munition Dispensing Set: Increment 1A

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M7 Spider, Increment 1, is a hand-emplaced, remotely controlled, man-in-the-loop anti-personnel (AP) munition system that is currently being fielded. The M7E1 Spider, Increment 1A, is being developed as a follow-on incremental development to the baseline Spider Program. Spider Increment 1A is not a replacement for the Increment 1 system. Increment 1A will develop and provide an enhanced control station that will utilize the common Increment 1 munitions and accessories. The Spider, Increment 1A, will retain all current features of the Increment 1 system, adding the following:

- New control station with the ability to ingest and display digital imagery maps for enhanced operator situational awareness during man-in-the-loop control
- Control station will be capable of providing obstacle situational awareness to the Joint Battle Command-Platform (JBC-P)
- Improved Interactive Electronic Training Manual and Embedded Training capabilities
- Ability to employ legacy government off-the-shelf munitions that will be compliant with U.S. National Landmine Policy, as is Increment 1

## BENEFIT TO THE SOLDIER

Spider Increment 1A will provide the warfighter with an improved networked munition control station with enhanced mapping, improved training capabilities and wizards, and the ability to employ and control fielded Army common AP and anti-vehicle (AV) lethal and nonlethal munitions and demolitions.

## SPECIFICATIONS

- Latest computer controller technology and operating system with map background and open system software architecture to support integration of future missions

- Ability to employ fielded Army blasting cap-initiated AP and AV munitions and obstacle effects
- Provide situational awareness information to JBC-P
- Self-destruct and self-deactivate capabilities
- Command reset and recycle self-destruct
- Transfer of control
- Command destruction
- On-off-on (safe passage/maintenance)
- Multiple effects (lethal, nonlethal, demolitions)
- Intrusion detection
- Anti-tamper and self-protection
- Reuse

## PROGRAM STATUS

- **3QFY17:** Milestone C
- **1QFY18:** Low Rate Initial Production Contract Award
- **4QFY18-1QFY19:** Initial Operational Test

## PROJECTED ACTIVITIES

- **2QFY19:**
  - Full Rate Production Decision
  - Full Materiel Release
- **3QFY19:** Initial Operational Capability



# Spider

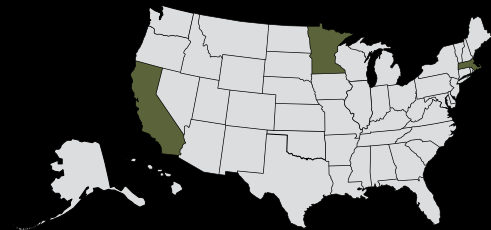
## FOREIGN MILITARY SALES

None

## CONTRACTORS

**Spider Increment 1A:** Northrop Grumman (Redondo Beach, CA)

**Spider Increment 1:** Joint venture between Textron Defense Systems (Wilmington, MA) and Northrop Grumman Innovation Systems (Plymouth, MN)



# Tactical Electric Power (TEP)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Tactical Electric Power (TEP) provides a standardized family of tactical electric power sources to Department of Defense (DOD) in accordance with DOD Directive 4120.11, Standardization of Mobile Electric Power Generating Sources.

The TEP program consists of a variety of generator set sizes. Small Generators: 2kW Military Tactical Generators (MTG), 3 kW Tactical Quiet Generators (TQG), Small Tactical Electric Power (STEP); Medium Generators: 5, 10, 15, 30 and 60 kW TQGs; Advanced Medium Mobile Power Sources (AMMPS), trailer-mounted Power Units and Power Plants; Large Generators: 100-200 kW TQGs, Large Advanced Mobile Power Sources (LAMPS); 840kW Deployable Power Generation and Distribution System (DPGDS); Power Distribution: Power Distribution Illumination System Electrical (PDISE) and Management and Distribution Control (microgrid intelligent power management and distribution).

The STEP, AMMPS and LAMPS are the third generation of mobile electric power generation systems and will replace the TQG over time.

## BENEFIT TO THE SOLDIER

The next generation of TEP will benefit the warfighter by offering increased system efficiency, reliability, mobility and maintainability. Units will see a significant reduction in fuel consumption, thereby reducing refueling operations, which decreases the overall risk to the warfighter.

## SPECIFICATIONS

- Maximized fuel efficiency, diesel/JP8-based and eliminates gasoline on battlefield
- AMMPS offers a fleet-weighted average of 21 percent improved fuel efficiency over the medium TQGs

- Increased reliability (AMMPS, 750 hours mean time between failures), maintainability and transportability via skid or trailer mount
- Improved sustainability; operates at rated loads in all military environments
- Minimized weight and size while meeting all user requirements with military ruggedized commercial components
- Reduced infrared signature and noise (AMMPS, less than 70 decibels at 7 meters)
- Survivability in chemical, biological and nuclear environments
- Advanced technology, including digital controls
- Standard DOD military tactical generator fleet that meets power generation and conditioning standards in accordance with Military Standard 1332B, Definitions of Tactical, Prime, Precise and Utility Terminologies for Classification of the DOD Mobile Electric Power Engine Generator Set Family
- Man-portability with 2 kW MTG and 3 kW TQG generators

## PROGRAM STATUS

- **1QFY16-4QFY18:** Continued production and/or fielding of the following systems: 2 kW MTG; 3 kW TQG; 5, 10, 15, 30 and 60 kW AMMPS; and PDISE

## PROJECTED ACTIVITIES

- **3QFY19:**
  - PDISE Production Rebuy Contract Award
  - 3 kW Production Rebuy Contract Award
- **4QFY20:** DPGDS Prime Power Unit Recapitalization Full Rate Production decision
- **4QFY21:** STEP Milestone B, entering Engineering and Manufacturing Development



# TEP

## FOREIGN MILITARY SALES

None

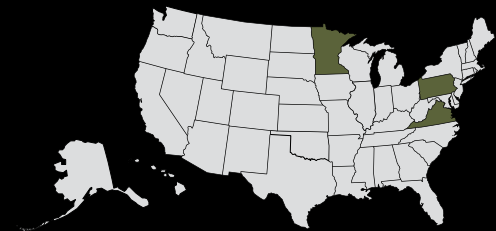
## CONTRACTORS

**3kW TQG:** Fidelity Technologies Corp. (Reading, PA)

**AMMPS 5–60kW:** Cummins Power Generation (Minneapolis, MN)

**DPGDS:** PD Systems (Springfield, VA)

**PDISE:** Fidelity Technologies Corporation (Reading, PA)







# WEAPON SYSTEMS ACAT III

Listed in alphabetical order



# Air Defense Artillery (ADA) Targets

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Crew gunnery and live-fire training are conducted using aerial targets. The targets are representative of unmanned aircraft systems and tactical fixed-wing aircraft that could be employed against U.S. forces. These targets must be capable of representing generic threat characteristics and must allow the Air Defense Artillery (ADA) weapon system crew to employ missile and gun systems to engage and destroy the target systems. ADA unit training programs must result in demonstrated tactical and technical competence, Soldier confidence in their weapon systems and the abilities of our Soldiers to employ their weapon systems in a field environment.

These systems are available for use on Department of Defense test or training ranges within the Continental United States and overseas, as well as in support of Foreign Military Sales cases.

## BENEFIT TO THE SOLDIER

The ADA Targets program is an integral part of supporting ground combat readiness. Soldiers in ADA units cannot train or maintain certification for their wartime mission without enemy-representative targets supporting their live-fire training events.

## SPECIFICATIONS

- Composite construction: Fiberglass or carbon fiber
- Endurance: 1-5 hours (cruise speed); fuel can be a trade for payload
- Maximum Altitude: 14,000 feet
- Maximum Speed: 125 mph
- Cruise Speed: 75 mph
- Multiple Launch: Catapult/runway/truck
- Control Ranges: Manual 3-5 km, Global Positioning System waypoint 0-25 km, satellite communications limited only by the onboard fuel

- Data link: UHF 260-380 MHz/380-400 MHz, 900 MHz, 2300-2499 MHz (video)
- Payloads: Infrared/Radio Frequency enhancer, electronic scoring (radar or acoustic), smoke, Mode S transponder, stabilized electro-optical and infrared camera, Multiple Integrated Laser Engagement System

## PROGRAM STATUS

- **FY16-FY18:**
  - Annual Gunnery Qualification Training for Avenger and Indirect Fire Protection Capability ADA units
  - National Training Center (NTC) Opposing Force (OPFOR) Surrogate Unmanned Aerial Vehicle (UAV)
  - U.S. Marine Corps Ground Based Air Defense Systems, Stinger Training
  - Navy Carrier fleet (surrogate threat Unmanned Aircraft System (UAS)) training and surrogate UAS joint testing requirements
  - Joint Readiness NTC OPFOR Surrogate Intelligence, Surveillance, and Reconnaissance (ISR) UAV support initiated, supporting all 10 annual rotations for OPFOR (509TH Infantry Regiment)
  - Continued support for Army ADA qualification training, Black Dart Counter UAS Demonstration support, National Training Center (NTC) surrogate ISR UAS OPFOR training with other Combat Training Center (CTC) involvement, continued support for testing, and support for multiple Research, Development, Test and Evaluation activities for Army and other military services laboratories
- **2QFY18:** Supported 2nd Low Altitude Air Defense (LAAD), U.S. Marine Corps (USMC) at Fort Greely, Alaska, for exercise Artic Edge

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Annual Gunnery Qualification Training for Avenger and Indirect Fire Protection Capability Army Air Defense units
  - NTC OPFOR Surrogate ISR UAV
  - USMC Ground Based Air Defense Systems, STINGER Training. 2QFY18 supported 2nd LAAD, USMC at Fort Greely, Alaska, for exercise Artic Edge
  - Navy Carrier fleet (surrogate threat UAS) training and surrogate UAS joint testing requirements
  - Joint Readiness NTC OPFOR Surrogate ISR UAV. Surrogate UAV support was initiated 1QFY18 and now supporting all ten annual rotations for OPFOR (509TH Infantry Regiment)
  - Continued support for ADA qualification training, Black Dart Counter UAS Demonstration support, NTC surrogate ISR UAS OPFOR training with other CTC involvement, continued support for testing, and support for multiple Research, Development, Test and Evaluation activities for Army and other military services laboratories

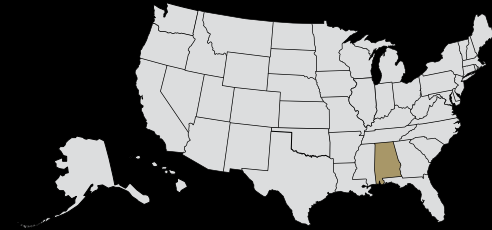
## ADA Targets

### FOREIGN MILITARY SALES

Australia, Israel, Jordan, Japan, Portugal and North Atlantic Treaty Organization Supply and Procurement Agency

### CONTRACTORS

Griffon Aerospace (Madison, AL)



# Ammunition — Medium Caliber

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Medium Caliber Ammunition (MCA) includes 20 mm, 25 mm, 30 mm and 40 mm Armor-Piercing (AP), High-Explosive (HE), smoke, illumination, training and antipersonnel cartridges with the capability to defeat light armor, materiel and personnel targets. These munitions provide overwhelming lethality in MCA and point- and area-target engagement via medium handheld and crew-served weapons.

## BENEFIT TO THE SOLDIER

Standard ammunition provides the warfighter with the necessary lethality needed to defeat the enemy. Specialty 40 mm rounds provide specific tools for the warfighter (e.g., illumination).

## SPECIFICATIONS

Specifications vary based on weapon platform, caliber and target set and effect.

- 20 mm cartridge is a multipurpose tracer with self-destruct capability, used in the Counter-Rocket, Artillery, Mortar (C-RAM) weapon system
- 25 mm target practice (TP), HE incendiary and AP cartridges are fired from the M242 Bushmaster Cannon from the Bradley Fighting Vehicle
- 30x113 mm TP and HE Dual Purpose (DP) cartridges are fired from the M230 Chain Gun mounted on the Apache and Black Hawk helicopters
- Varieties of 40 mm TP, HEDP and specialty cartridges are designed for use in the M203 Grenade Launcher, M320 Grenade Launcher and the MK19 Grenade Machine Gun
- 30x173mm TP, HE incendiary and AP cartridges are fired from the XM813 Cannon from the Stryker Infantry Combat Vehicle

## PROGRAM STATUS

**FY16-FY18:** Production and Sustainment

- 40 mm Door Breach (DB) Request for Proposals Release
- 40 mm High Velocity (HV) Capability Development Document (CDD) approved
- 40 mm HV and Low Velocity Day-Night-Thermal Low Rate Initial Production
- 30x173 mm Stryker Ammunition Urgent Materiel Release/ Operator New Equipment Training
- 20 mm Improved M940 Joint Urgent Operational Need Statement Fielding
- 40 mm HE Airburst (AB) Milestone B
- 40 mm HEAB Engineering, Manufacturing and Development (EMD) Contract Award
- 40 mm HEDP-AB Milestone B
- 40 mm DB Milestone B
- Medium Caliber Family of Ammunition Contract Award buy 2

## PROJECTED ACTIVITIES

**FY19-FY23:**

- Cannon-caliber and 40 mm legacy Production and Sustainment
- New multiyear 40 mm Production Contract
- Qualify 30 mm ammunition for Stryker Infantry Combat Vehicle, 2nd Cavalry Regiment lethality upgrade
- Award Defense Ordnance Technology Consortium contract efforts for 30 mm Lightweight AB
- EMD contract award for 40 mm DB and HEDP-AB
- Milestone C for 40 mm DB, HEAB, and HEDP-AB
- Multifunctional Munition CDD Approval

# Medium Caliber Ammunition Family



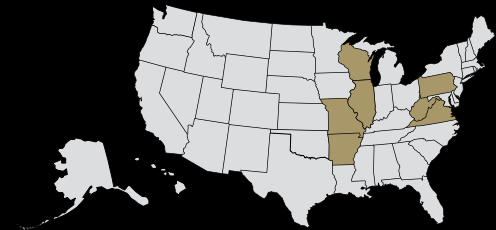
## Ammunition — Medium Caliber

### FOREIGN MILITARY SALES

Afghanistan, Egypt, Greece, India, Iraq, Israel, Japan, Jordan, Korea, Morocco, Netherlands, Pakistan, Qatar, Saudi Arabia and Tunisia

### CONTRACTORS

General Dynamics Ordnance and Tactical Systems (Marion, IL; Red Lion, PA)  
 Northrop Grumman Innovation Systems (Radford, VA; Independence, MO; Rocket City, WV)  
 AMTEC Corp. (Janesville, WI; Camden, AR)



# Ammunition – Small Caliber

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Small caliber ammunition is .50 caliber and below. Conventional small caliber ammunition in production and deployment consists of 5.56 mm, 7.62 mm, 9 mm, 10- and 12-gauge, .22 caliber, .30 caliber, .38 caliber, .45 caliber, .300 Winchester Magnum (WinMag) and .50 caliber. The 5.56 mm cartridge is used in the M16 Rifle, M4 Carbine and M249 Squad Automatic Weapon. The 7.62 mm cartridge is used in the M240 Machine Gun, M24 Sniper Weapon System, M110 Semi-automatic Sniper System and the M14 Rifle. The 9 mm cartridge is fired in the M9, M17 and M18 Pistols. The M2010 Enhanced Sniper Rifle uses the .300 WinMag cartridge. The M2 Machine Gun and the M107 Sniper Rifle use .50 caliber cartridges. The remaining small caliber ammunition is used in a variety of pistols, rifles and shotguns.

Small caliber ammunition in research and development consists of Lightweight Case to lighten the Soldier's load, advanced armor-piercing capabilities, reduced range ammunition and one-way luminescent trace ammunition.

Three categories of small caliber ammunition are currently in use. War reserve ammunition is ammunition with overmatch capability that supports individual and crew-served weapons during combat operations; training standard ammunition is dual-purpose and can be used to support both training and operational requirements; and training-unique ammunition is designed specifically for use in training and is not authorized for use in combat (i.e., blank, dummy-inert, close combat man marking and short-range training ammunition).

## BENEFIT TO THE SOLDIER

Standard ammunition provides the warfighter with the necessary lethality needed to defeat the enemy.

## SPECIFICATIONS

- Vary based on weapon platform, caliber and target set and effect

## PROGRAM STATUS

### FY16-FY18:

- 7.62 mm Lightweight Case Preliminary Design Review
- 7.62 mm Advanced Armor Piercing (ADVAP) Critical Design Review and Development Test & Evaluation
- .50 Reduced-range Ammunition (RRA) and Materiel Development Decision
- 7.26 mm One-way Luminescence (OWL) Technology Readiness Level 6, System Requirements Review, Design Verification Test

## PROJECTED ACTIVITIES

### FY19-FY23:

- 7.26 mm ADVAP Production Readiness Review
- 7.62 mm OWL Milestone B
- 7.62 mm RRA Developmental Request for Proposals Release Decision, Milestone B
- .50 caliber RRA Milestone B



# Ammunition – Small Caliber

## FOREIGN MILITARY SALES

Afghanistan, Australia, Greece, Iraq, Israel, Jordan and Tunisia

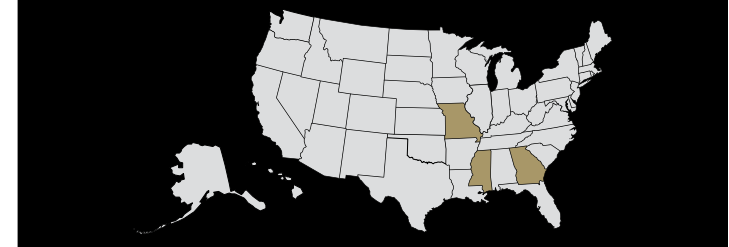
## CONTRACTORS

**Rifle and Machine Gun Ammunition:** Northrop Grumman Innovation Systems (Independence, MO); Olin Corporation (Oxford, MS)

**Pistol and Shotgun Ammunition:** Olin Corporation (Oxford, MS)

**Ammunition Storage Containers:** BWAY Corporation (Atlanta, GA)

## Small Caliber Ammunition Family



# Ammunition — Tank

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The current 120 mm family of tactical tank ammunition consists of fifth generation Kinetic Energy (KE), multipurpose and canister ammunition.

KE ammunition lethality is optimized by firing maximum weight, sub-caliber projectiles at the greatest velocity possible, defeating advanced-threat armor. The 120 mm M829A4 KE cartridge provides armor-defeat capability and is currently in production.

Multipurpose ammunition uses a High-Explosive (HE) warhead to provide blast, armor penetration and fragmentation effects. The Advanced Multipurpose (AMP) cartridge is a 120 mm HE, MP munition. When fired from a platform equipped with the Ammunition Data Link (already incorporated into the Abrams tank), the cartridge can be programmed for one of three modes including point-detonate, point-detonate-delay or airburst. AMP will consolidate the capabilities of currently fielded HE munitions, including the 120 mm M830A1HE Anti-tank round and the 120 mm M908, HE Obstacle-reduction Tank round as well as the 120 mm M1028 canister cartridge, which is a shotgun shell-like canister cartridge that provides the Abrams tank with effective, short-range, rapid, lethal fire against massed assaulting infantry.

The 120 mm family has dedicated training cartridges in production: the 120 mm M865 Target Practice (TP) Cone-stabilized (CS) Discarding-sabot (DS) with Tracer (TPCSDS-T), with its reduced range, simulates KE tactical trajectory up to 2,500 meters; and the 120 mm M1002 TPMP-T, which simulates the M830A1 size, weight and nose switch. To support the Stryker force, the 105 mm Mobile Gun System (MGS) uses M1040 canister cartridges. The M1040 canister cartridge provides rapid, lethal fire against massed assaulting infantry

at close range. The new 105 mm M724A2 is a reduced-range training cartridge intended to provide the Soldier with the training capability to maximize the effectiveness of the tactical 105 mm M900 KE cartridge, which provides armor-defeat capability. The 105 mm M724A2 TPDS-T is a ballistic match for the 105 mm M900AP Fin-stabilized (FS) DS-T (APFSDS-T). The cartridge will be used in the Stryker MGS. The 105 mm M467A1 Tank HE Squash Head TP-T cartridge is a ballistic match to the M393A3 HE/HE-P tactical round. The MGS employs the M68A1/A2 105 mm rifled gun tube with a Muzzle Reference System and an autoloader for 105 mm ammunition storage and handling.

## BENEFIT TO THE SOLDIER

Standard ammunition provides the warfighter with the necessary lethality needed to defeat the enemy.

## SPECIFICATIONS

- Various specifications used depend on weapon platform, caliber, target set and effect

## PROGRAM STATUS

- **FY16-FY18:**
  - M829A4, M830, M830A1, M1002, M908, M1028, M1040, M393A3, M724A2, M467A1 Fielded
  - 120 mm AMP Development Contract Phase 2 Option awarded
  - Critical Design Review
  - Milestone C
  - Low Rate Initial Production

## PROJECTED ACTIVITIES

- **FY19-FY23:** AMP, M829A4 and Tank Training Cartridge continue production



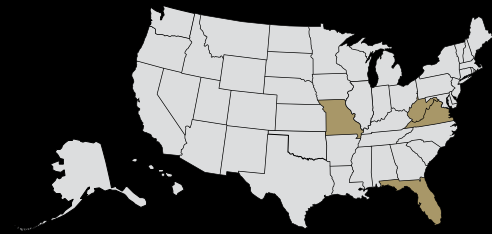
## Ammunition — Tank

### FOREIGN MILITARY SALES

- 120 mm Insensitive Munition High Explosive with Tracer (HE-T) Cartridge
- 120 mm KE-W A1 APFSDS-T Cartridge
- 120 mm M1028 Canister Cartridge
- 120 mm M865 TPCSDS-T Cartridge
- 120 mm M1002 TPMP-T Cartridge

### CONTRACTORS

**M1028, M1002, M865, M724A2, AMP EMD, M829A4:** Northrop Grumman Innovation Systems (Radford, VA; Independence, MO; Rocket City, WV);  
**M1028, M1002, M865, IM HE-T, KE-W A1:** General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)



# Army Key Management Infrastructure (AKMI)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Under the umbrella of the National Security Agency Electronic Key Management System (EKMS), the Army provides all users from enterprise down to tactical units with secure organic key management (ordering, generation, distribution and destruction).

The Army Key Management Infrastructure (AKMI) consists of three subcomponents: Management Client, Automated Communications Engineering Software (ACES) and Next Generation Load Device (NGLD). AKMI provides a system for distribution of Local Communications Security (COMSEC), electronic protection, mission initialization data and Signal Operating Instructions (SOI) information from the planning level to the point of use in support of current, interim and objective force structure. AKMI introduces capabilities and processes to transform operations from manual to secure automated distribution of keys and firmware directly to end devices.

## BENEFIT TO THE SOLDIER

AKMI provides a system for distribution of COMSEC, electronic protection and SOI information from the planning level to the point of use in support of current, interim and objective forces at division and brigade levels.

## SPECIFICATIONS

- Management Client Nodes (MGC): Automates COMSEC management and accounting; electronically generates and distributes keys; reduces hardcopy files use
- ACES and Joint Automated COMSEC System: Provides crypto network planning; generates SOI data and creates COMSEC key tags; supports emerging requirements
- NGLD: Loads keys into End Cryptographic Units (ECU); small and ruggedized design allows easy key transfers;

interface between Local COMSEC Management System and MGC (Key Generation), ACES and ECUs

## PROGRAM STATUS

- **FY17-FY19:** Simple Key Loader Production and Delivery
- **FY18 Remaining Activities:**
  - Continue to field CI2 Spiral 2, SPIN 2 SW baseline (152 fielded 245 remaining)
  - Transition remaining 3 EKMS accounts to KMI
  - Field remaining (1 ) Dell XE2 KMI Workstation
  - Recertify and field KMI AKP devices
  - Support Government Systems Testing in support of KMI CI2 Spiral 2 Spin 3 FOT&E
  - Continue to Provide Help desk support for 397 Army KMI Accounts
  - Field remaining KMI Spares to forward located Pre-Position sites

## PROJECTED ACTIVITIES

- **FY19:** Anticipated contract award Next Generation Load Device
- **FY19 Planned Activities:**
  - Procure Pipeline KMI Spares in preparation for transition to sustainment
  - Provide support for CI2 Spiral 2, Spin 3 FOT&E
  - Field CI2 Spiral 2, Spin 3 SW baseline post FDD (expected 3Q FY19)
  - Recertify and Field 100 KMI AKP devices
  - Execute final plans for Transition of KMI CI2 to sustainment
  - Provide Help desk support for 397 Army KMI Accounts
- **FY20 and Beyond:**
  - Support development, deployment, and fielding of KMI CI3-5
  - Sustainment support of KMI CI2 HW and SW



# AKMI

## FOREIGN MILITARY SALES

None

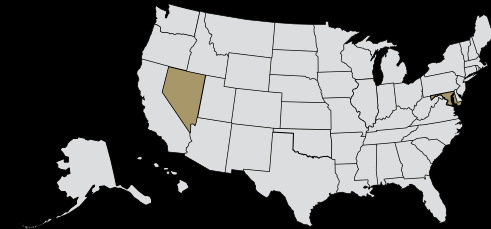
## CONTRACTORS

CACI (Aberdeen, MD)

Sierra Nevada Corporation (Sparks, NV)

Dynamics Research Corporation (Aberdeen, MD)

AASKI Technology (Aberdeen, MD)



# Army Tactical Missile System (ATACMS)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

### Production & Deployment

Operations & Support

## DESCRIPTION

The suite of Army Tactical Missile Systems (ATACMS) are 24/7, all-weather, surface-to-surface, inertially guided missiles used to engage targets in the corps/Army area of influence. ATACMS were used extensively in both Operation Desert Storm (1991) and in Operation Iraqi Freedom (2003) ground wars for shaping operations by the joint force, Joint Special Operations Forces and Army Land Component Command operational levels. There is one missile per launching assembly (missile pod) with two missiles per launcher load in the M270/ M270A1 Multiple-Launch Rocket System and one missile in the M142 High Mobility Artillery Rocket System launcher.

Targets include air defense artillery sites, surface-to-surface missile units, logistics sites, command and control complexes and helicopter forward operating bases.

## BENEFIT TO THE SOLDIER

ATACMS provides the warfighter the ability to engage both point and area high value targets with precision fires out to 300 km.

## SPECIFICATIONS

- **M39 Block I**
  - Range: 25-165 km
  - Payload: 950 Anti-Personnel, Anti-Materiel (APAM) bomblets
  - Guidance: Inertial
- **M39A1 Block IA**
  - Range: 70-300 km
  - Payload: 300 APAM bomblets
  - Guidance: Inertial with Global Positioning System (GPS) Aided
- **M48 Quick Reaction Unitary**
  - Range: 70-300 km

- Payload: Unitary Warhead
- Guidance: Inertial with GPS Aided
- **M57 TACMS 2000 Unitary**
  - Range: 70-300 km
  - Payload: Unitary Warhead
  - Guidance: Inertial with GPS Aided

## PROGRAM STATUS

- **4QFY17:** Service Life Extension Program (SLEP) 1 Production Contract Award
- **2QFY18:** ATACMS Unitary Height-of-Burst Operational Test #1 and #2 – White Sands Missile Range, New Mexico
- **3QFY18:** SLEP 2 Production Contract Award

## PROJECTED ACTIVITIES

- **3QFY19:** ATACMS Production Contract Award
- **3QFY20:** ATACMS Production Contract Award
- **3QFY21:** ATACMS Production Contract Award
- **3QFY22:** ATACMS Production Contract Award
- **3QFY23:** ATACMS Production Contract Award



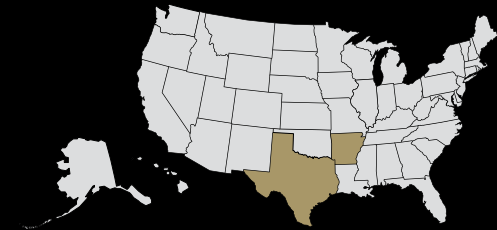
# ATACMS

## FOREIGN MILITARY SALES

FMS procurement programs are underway.

## CONTRACTORS

Lockheed Martin Missiles and Fire Control (Grand Prairie, TX; Camden, AR)



# Army Watercraft Systems (AWS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

Army Watercraft Systems (AWS) expand commanders' movement and maneuver options in support of unified land operations. The Army's current fleet of 132 AWS enables commanders to operate through fixed, degraded and austere ports, conducting expeditionary sustainment and movement and maneuver of forces for missions across the spectrum of military operations. With the exception of the newest Maneuver Support Vessel (Light) (MSV(L)) platform, the legacy vessels vary widely in age and do not have a single manufacturer.

## BENEFIT TO THE SOLDIER

Army watercraft provide responsive, cross-domain capability to move combat configured forces, equipment and sustainment supplies close to the point of need throughout a theater of operations creating multiple, complex operational dilemmas for adversaries throughout all phases of military operations.

## SPECIFICATIONS

- **Landing Craft:** Provide inter- and intra-theater transportation of personnel and matériel, delivering cargo from advanced bases and deep-draft strategic sealift ships to harbors, inland waterways, remote and unimproved beaches and coastlines, and denied or degraded ports
  - Logistic Support Vessel
  - Landing Craft Utility (LCU-2000)
  - Landing Craft Mechanized (LCM-8) to be replaced by MSV(L)
- **Ship-to-Shore Enablers:** Enable the discharge of strategic sealift ships when suitable ports are unavailable while at anchor or onto degraded ports or bare beaches; causeway systems enable joint and Army forces to load transload and offload equipment, personnel and sustainment cargo during sea-based operations, operations in degraded or

austere ports, and bare-beach, joint logistics over-the-shore operations

- Modular Warping Tug
- Roll-on/Roll-off Discharge Facility
- Floating Causeway
- Causeway Ferry
- **Towing and Terminal Operations:** Provide heavy lifting, ocean and port/harbor towing, and salvage operations in open, denied or degraded ports; used for general port management and husbandry duties (storing fuel, repositioning barges, firefighting, docking and undocking large ships); can clear and operate ports (fixed, degraded and austere) while providing coordinated, simultaneous support to multiple sustainment operations sites widely distributed throughout the area of operations
  - Large Tug (LT-800)
  - Small Tug (ST-900)
  - Barge Derrick (BD 115-ton)

## PROGRAM STATUS

### MSV(L) Engineering & Manufacturing Development (EMD):

- **4QFY17:** Milestone B/Contract Award
- **3QFY18:** Preliminary Design Review

### LCU-2000 Service Life Extension Program (SLEP):

- **2QFY17:** Induction of Phase I – Vessel 1
- **4QFY17:** Induction of Phase I – Vessel 2
- **1QFY18:** Induction of Phase I – Vessel 3

### Modular Causeway System (MCS) SLEP:

- **1QFY18:** Preliminary Design Review



## PROJECTED ACTIVITIES

### MSV(L):

- **2QFY19:** Critical Design Review
- **1QFY21:** Prototype Delivery

### LCU-2000 SLEP:

- **2QFY18:** Delivery of Phase I – Vessel 1
- **3QFY18:** Delivery of Phase I – Vessel 2
- **4QFY18:**
  - Delivery of Phase I – Vessel 3
  - Technical Data Package Delivery

### MCS SLEP:

- **3QFY18:** Critical Design Review
- **1QFY19:** Technical Data Package Delivery

# AWS

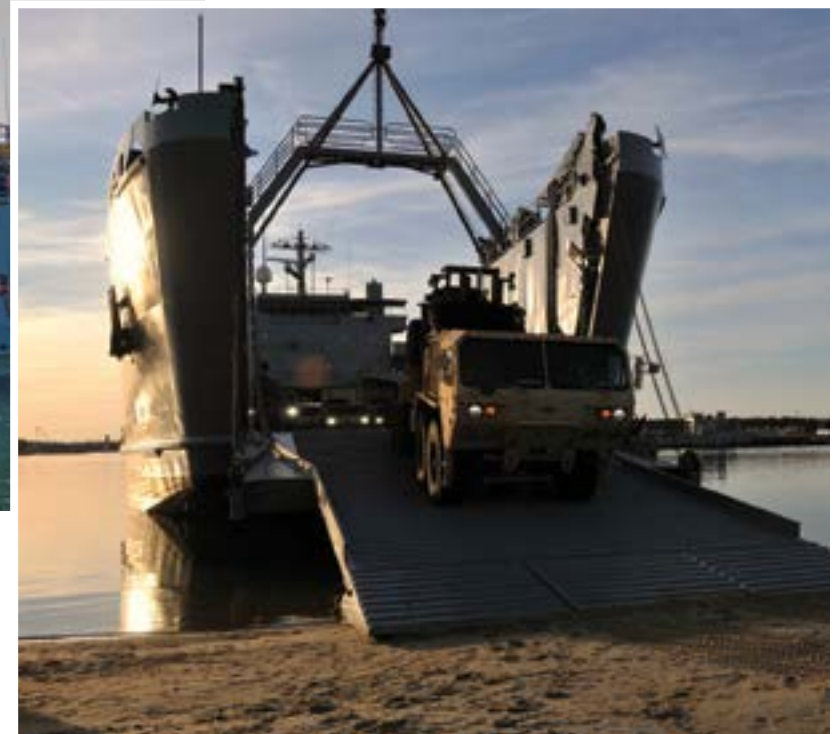
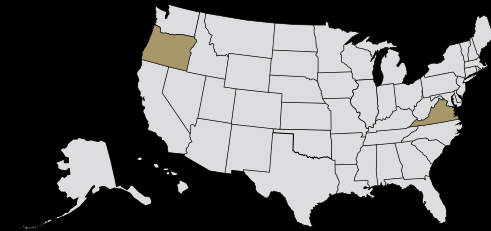
## FOREIGN MILITARY SALES

None

## CONTRACTORS

**MSV(L) EMD:** Vigor Works LLC (Clackamas, OR)

**LCU SLEP:** Alion Science and Technology  
(McLean, VA)



# Artillery Ammunition

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Army's artillery ammunition program includes 75 mm (used for ceremonies and simulated firings), 105 mm and 155 mm projectiles and their associated fuses and propelling charges. Semifixed ammunition for short and intermediate ranges, used in 105 mm Howitzers, is characterized by adjusting the number of multiple propelling charges. Semifixed ammunition for long ranges contains a single bag of propellant optimized for obtaining high velocity, and is not adjustable. The primer is an integral part of the cartridge case, and is located in the base. The 105 mm cartridges are issued in a fused or unfused configuration. Both cartridge configurations are packaged with propellant.

Separate-loading ammunition, used in 155 mm Howitzers, has separately issued projectiles, fuses, propellant charges and primers. After installing the appropriate fuse on the projectile, the fused projectile is loaded into the cannon along with the appropriate amount of propellant charges and a primer.

The artillery ammunition program includes fuses for cargo-carrying projectiles, such as smoke and illumination, and bursting projectiles, such as High Explosives (HE). This program also includes bag propellant for the 105 mm semifixed cartridges and a modular artillery charge system for 155 mm Howitzers.

## BENEFIT TO THE SOLDIER

The mission of the Field Artillery is to destroy, defeat or disrupt the enemy with integrated fires to enable maneuver commanders to dominate in unified land operations. Cannon-artillery-delivered munitions are a vital component of this mission.

## SPECIFICATIONS

- Insensitive munitions (IM) fill is used in the following HE rounds, making the inventory safer: 105 mm M1; 105 mm M1130; 155 mm M1122; and 155 mm M795
- Projectiles that utilize shell bodies obtained from 155 mm cluster munitions that have been demilitarized, significantly lowering unit cost: M1122, 155 mm IM HE; M1123, 155 mm Infrared Illumination; M1124, 155 mm Visible Light Illumination; and M110A3, 155 mm Spotting Smoke

## PROGRAM STATUS

- **FY16:** Full Rate Production (FRP) for 155 mm Joint Extended-Range Illumination Projectiles M1123 and M1124 commences at Pine Bluff Arsenal, Arkansas
- **2QFY16:** Second source for 155 mm M1122 HE stood up at Crane Army Ammunition Activity (CAAA), Indiana
- **4QFY16:**
  - Produced and delivered new production M82 primers in support of the Paladin Integrated Management program Initial Operational Test and Evaluation
  - Fulfilled U.S. Army Europe REF10 Liner for 155 mm Smoke with the M116A1 Projectile
- **3QFY17:** Achieved Type Classified-Standard (TC-STD) for the Extended-Range Smoke 155 mm White Phosphorus (WP) Smoke Projectile M1121
- **1QFY18:** Achieved Milestone B for the Extended-Range (ER) 155 mm HE Projectile XM1128

## PROJECTED ACTIVITIES

- **1QFY19:** Stand up new Load, Assemble and Pack Facility at CAAA to support 155 mm M1122 HE Production
- **3QFY19:**
  - Achieve TC-STD for the 155 mm M1122E1 HE Projectile
  - Achieve Milestone B for the HE Rocket Assisted Projectile (RAP) XM1113

- **4QFY19:** Stand up new mixing/pressing facility at Pine Bluff Arsenal that provides less toxic smoke
- **1QFY20:** Achieve Full Materiel Release (FMR) for the 155 mm M1121 WP Smoke Projectile
- **1QFY21:** Achieve Milestone C/TC-STD for the HE ER 155 mm XM1128
- **4QFY21:** Achieve Milestone C/TC-STD for the HE RAP 155 mm XM1113
- **1QFY22:** Achieve FMR and Full Rate Production (FRP) Decision for HE ER 155 mm XM1128
- **4QFY22:** Achieve FMR and FRP Decision for HE RAP 155 mm XM1113

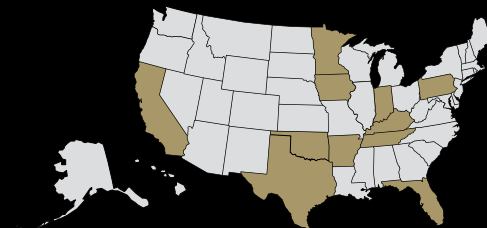
# Artillery Ammunition

## FOREIGN MILITARY SALES

Fielded with multiple countries — names for official use only and not for public disclosure.

## CONTRACTORS

Action Manufacturing (Bristol, PA)  
 American Ordnance (Middletown, IA)  
 ARMTEC (Coachella, CA)  
 Bluegrass Army Depot (Lexington, KY)  
 Chemring Ordnance (Perry, FL)  
 Crane Army Ammunition Activity (Crane, IN)  
 Day & Zimmermann-Lone Star (Texarkana, TX)  
 General Dynamics Ordnance and Tactical Systems (Fort Lauderdale, FL; Scranton, PA; Canada)  
 Holston Army Ammunition Plant (Kingsport, TN)  
 McAlester Army Ammunition Plant (McAlester, OK)  
 Northrop Grumman Innovation Systems (Minneapolis, MN)  
 Pine Bluff Arsenal (Pine Bluff, AR)



# Assault Breacher Vehicle (ABV)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The Assault Breacher Vehicle (ABV) is a highly mobile and heavily armored minefield and complex obstacle breaching system. It consists of an M1A1 Abrams tank hull; a unique turret with two Linear Demolition Charge Systems (employing two Mine Clearing Line Charges (MICLIC) and rockets); a Lane Marking System (LMS); Integrated Vision System; and a High Lift Adapter that interchangeably mounts a Full Width Mine Plow (FWMP) or a Combat Dozer Blade.

ABV, which requires a crew of two Soldiers, improves the mobility and survivability of combat engineers while having the speed and ability to keep pace with the maneuver force. It creates a tank-width cleared lane through a minefield by launching and detonating one of its MICLIC systems across the minefield, then proofing the lane with its FWMP while marking the cleared lane with its LMS.

## BENEFIT TO THE SOLDIER

The ABV provides crew protection and vehicle survivability while having the speed and mobility to keep pace with the maneuver force. Commonality of support (M1A1) is also a significant benefit to the Soldier.

## SPECIFICATIONS

- ABV's M1A1 chassis is very similar to the Abrams in terms of size, weight, speed and range

## PROGRAM STATUS

- **2QFY16-3QFY18:** ABV Fieldings
- **2QFY18:** Restarted the ABV Production for additional ABVs for Army National Guard (ARNG)

## PROJECTED ACTIVITIES

- **1QFY19:** Restart Production
- **FY19-FY23:** Seven Fieldings, ARNG, U.S. Army Forces Command and Army Prepositioned Stocks

# ABV

## FOREIGN MILITARY SALES

None

## CONTRACTORS

**Integration:** Anniston Army Depot (Anniston, AL)

**Government Furnished Equipment Contractors:**

**Engineering Breaching Systems:** Pearson Engineering LTD (United Kingdom)

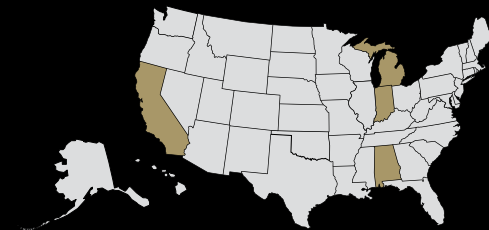
**Linear Demolition Charge System:** AECOM (Indianapolis, IN)

**Integration Vision System:** Leonardo DRS (Cypress, CA)

**Embedded Diagnostics System:** Leonardo DRS (Huntsville, AL)

**Hull Integration Kits:** General Dynamics Land Systems (Sterling Heights, MI)

**Technical Manuals:** XMCO Inc. (Warren, MI)



# Assured-Positioning, Navigation and Timing (A-PNT) – Dismounted

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Dismounted Assured-Positioning, Navigation and Timing (A-PNT) will provide a single source of A-PNT to support communications, command and control, logistics, targeting and effects. It will replace Defense Advanced Global Positioning System (GPS) Receiver and commercial GPS for the Nett Warrior Ensemble and as a stand-alone capability. It will also optimize power to leverage shared Conformal Wearable Battery when employed with Nett Warrior.

This program supports the A-PNT Cross-Functional Team (CFT), which has been established to support the Army Modernization Priorities.

## BENEFIT TO THE SOLDIER

Dismounted A-PNT will provide accurate and trusted PNT information to the Army's dismounted users under conditions where space-based PNT GPS may be limited or denied.

## SPECIFICATIONS

- Capability Development Document and associated Requirements Development Package in development

## PROGRAM STATUS

- **1QFY17:** Dismounted A-PNT new start
- **FY17-FY18:** Dismounted A-PNT risk reduction activities
- **1QFY18:** A-PNT CFT established
- **2QFY18:** Chief of Staff of the Army approved the A-PNT CFT Roadmap
- **3QFY18:** Dismounted A-PNT Request for White Papers released through the Other Transaction Authority (OTA) Contract Vehicle

## PROJECTED ACTIVITIES

- **1QFY19:** OTA Contract Award for Requirements Development Package 1
- **4QFY20:** Developmental Operations Assessment
- **1QFY21:** Production Decision Point
- **3QFY21:** Achieve Initial Operational Capability

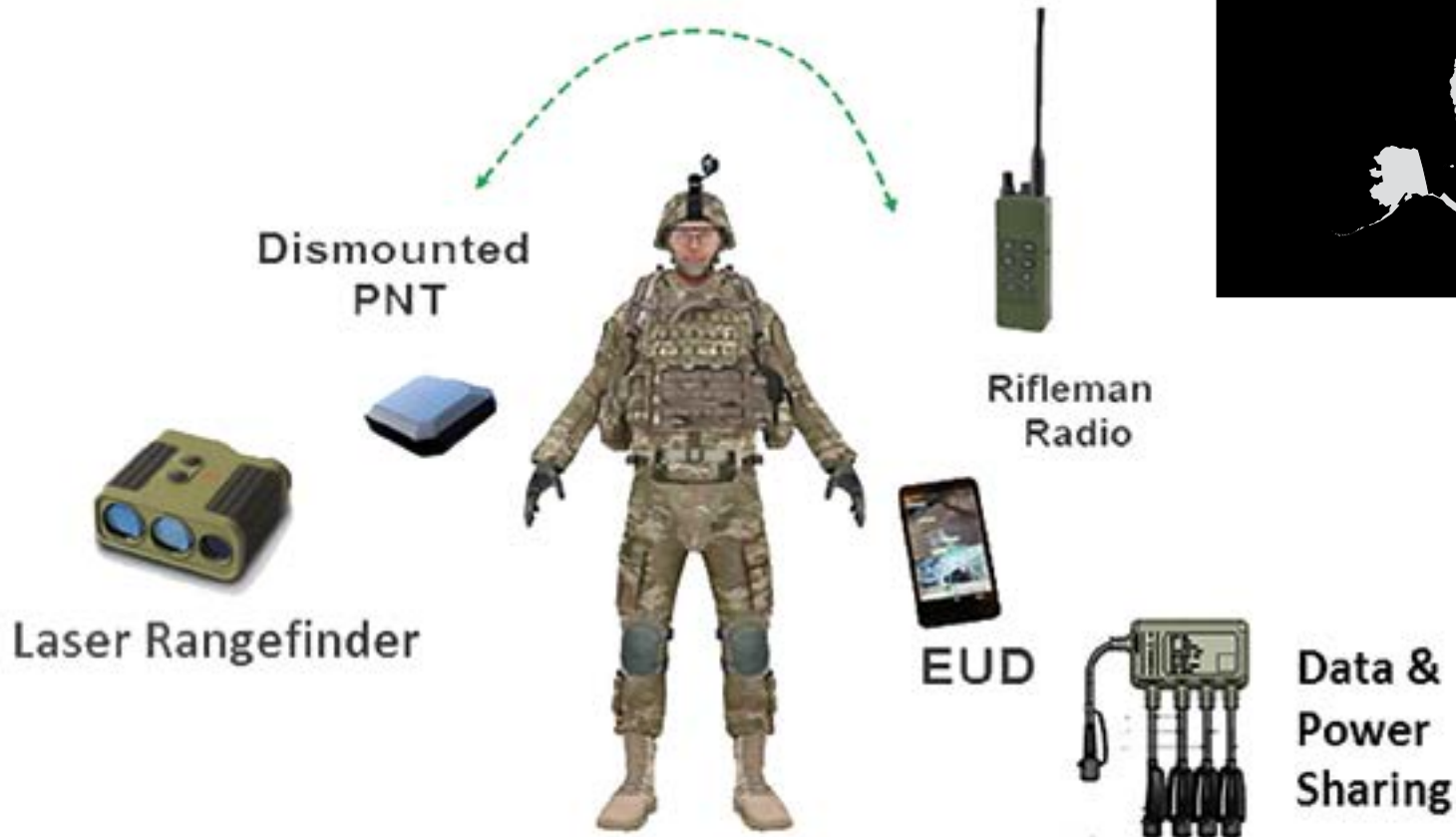
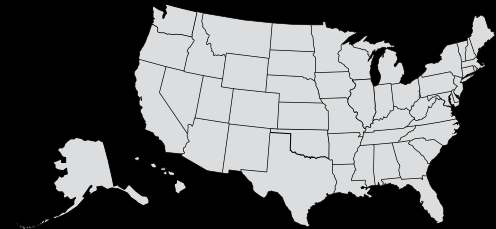
# A-PNT — Dismounted

FOREIGN MILITARY SALES

None

CONTRACTORS

TBD



**Supporting Nett Warrior  
& Dismounted  
Soldier Systems**

# Assured Positioning, Navigation and Timing (A-PNT) – Mounted/Anti-Jam Antenna System (AJAS)



PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD

## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Mounted Assured Positioning, Navigation and Timing (A-PNT)/Anti-Jam Antenna System (AJAS) will be a scalable, upgradeable system-mounted platform for ground and unmanned aerial vehicles. It fuses Global Positioning System (GPS) with alternate navigation and timing technology to provide trusted PNT to client platforms and systems. It distributes PNT data to multiple systems directly and via the network, replacing the need for multiple GPS devices on a single platform. It is expected that an AJAS will be integrated with the mounted system to achieve performance requirements and will enable mounted receivers access to GPS signals in challenged environments.

This program supports the A-PNT Cross-Functional Team (CFT) which has been established to support the modernization priorities of the Army.

## BENEFIT TO THE SOLDIER

Mounted A-PNT/AJAS will provide accurate and trusted PNT information to Army's mounted platforms in order to continue combat operations/battle rhythms under conditions where space-based PNT GPS may be limited or denied.

## SPECIFICATIONS

- Capability Development Document and associated Requirements Development Package in development

## PROGRAM STATUS

- **4QFY17:** Mounted Risk Reduction Activities
- **1QFY18:**
  - AJAS new start
  - A-PNT CFT established
- **2QFY18:** Approved A-PNT CFT Roadmap by the Chief of Staff of the Army
- **3QFY18:** Mounted A-PNT/AJAS Request for White Papers released through the Other Transaction Authority (OTA) contract vehicle

## PROJECTED ACTIVITIES

- **1QFY19:** OTA Contract Award for Requirements Development Package 1
- **2QFY20:** User Assessment
- **4QFY20:** Production decision point
- **4QFY21:** Achieve Initial Operational Capability



# A-PNT — Mounted/AJAS

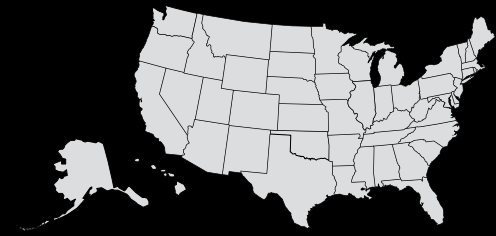


**FOREIGN MILITARY SALES**

None

**CONTRACTORS**

TBD



**Notional Mounted A-PNT Distribution on Stryker ICV**



# Battlefield Kitchen (BK)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment  
Operations & Support

## DESCRIPTION

The Battlefield Kitchen (BK) provides the capability to prepare meals to sustain 300 Soldiers with quality nutrition in a tactical environment. BK is a trailer-mounted, expandable platform towed by the Light Medium Tactical Vehicle. It will replace the Army's remaining Mobile Kitchen Trailers (MKT), primarily in echelon-above-brigade units.

## BENEFIT TO THE SOLDIER

BK will provide better meal quality, enhanced versatility and a healthier operator environment through the use of new thermostatically controlled, modular appliances. The MKT uses open flame appliances from the 1950s that vent exhaust and heat into the kitchen environment inhabited by cooks and their customers. BK's energy efficient, quiet appliances will feature closed combustion to vent burner exhaust from the kitchen. The man-portable, modular appliances will also be reconfigurable within the kitchen or dismountable for use off the kitchen platform. This will provide the flexibility to adapt meal preparation to the mission scenario.

## SPECIFICATIONS

- Capable of preparing rations for 300 personnel in four hours using any available military ration
- M1061 A1 military standard trailer
- Onboard 3 kW military standard generator
- Modular appliances with a minimum of 20 percent less fuel consumption
- Onboard ventilation, running water and refrigeration
- Capable of rail, sea, road, variable and fixed wing transport
- Capable of being deployed and used worldwide in all conditions and environments
- Government-owned technical data for re-procurement and to provide complete life cycle support

## PROGRAM STATUS

- **3QFY18:** Production Prove-Out Testing ongoing

## PROJECTED ACTIVITIES

- **3QFY19:**
  - Milestone C, Low Rate Initial Production (LRIP) decision
  - Contract Production Option Award
  - Begin LRIP



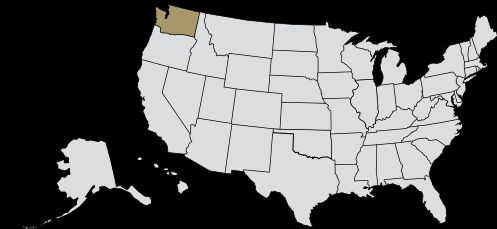
**BK**

**FOREIGN MILITARY SALES**

None

**CONTRACTORS**

Berg Company (Spokane, WA)



# Biometric Enabling Capability (BEC)

PEO Intelligence, Electronic Warfare and Sensors | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Biometric Enabling Capability (BEC) program provides the authoritative biometrics enterprise system known as Department of Defense (DOD) Automated Biometric Identification System (ABIS). This central, multimodal biometrics data repository is the enterprise-level authoritative data source for all DOD biometrics. DOD ABIS can transmit, store, manage, share, retrieve and display biometric data in support of identity superiority operations. DOD ABIS includes multimodal (fingerprint, palm, iris and face) storage and matching, watch-list capability and sharing with interagency repositories. It is based on adaptations of Commercial Off-The-Shelf products, using open architecture to minimize development and speed deployment.

DOD ABIS interfaces with numerous DOD and interagency biometrics systems, including the FBI Next Generation Integrated Automated Fingerprint Identification System (IAFIS) and Department of Homeland Security (DHS) Automated Biometric Identification System (IDENT), to store and match biometric data on non-U.S. persons of interest to DOD.

## BENEFIT TO THE SOLDIER

BEC is a mission-enabler for force protection, intelligence, physical and logical access control, identity management/credentialing, detention and interception operations. The program supports overseas contingency operations, including counterintelligence; Iraqi and Afghan security force screening; detainee operations; cache and post-improvised explosive device incident exploitation; intelligence operations; presence operations; local population control; seizure operations; and base access control.

## SPECIFICATIONS

- Multimodal storage and matching, including fingerprint, palm, iris and face
- Watch-list capability
- Improved integration with interagency repositories, including the FBI Next Generation IAFIS and the DHS IDENT systems

## PROGRAM STATUS

- **1QFY16:** Approval of Transition of Project Manager DOD Biometrics to PEO Intelligence, Electronic Warfare and Sensors
- **2QFY16:** Approval of Full Deployment Decision
- **3QFY17:** Awarded contract for Sustainment (DOD ABIS 1.2) and Service Life Extension (DOD ABIS 1.3) Program

## PROJECTED ACTIVITIES

- **2QFY20:** Deployment of DOD ABIS v1.3

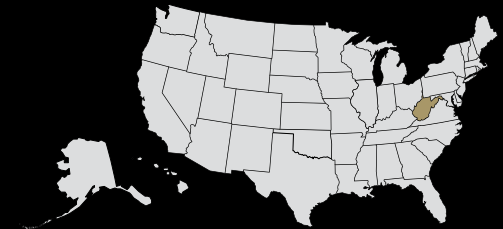
# BEC

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Leidos (Fairmont, WV)



# Calibration Sets (CALSETS) Equipment

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Calibration Sets (CALSETS) program has two Mobile Maintenance Shops for the deployment of Area Test, Measurement and Diagnostic Equipment (TMDE) Support Teams (ATST). Six variations of CALSETS for TMDE maintenance and two variations of local area networks (LAN) allow use of automated maintenance procedures and transfer of maintenance information. TMDE maintenance facilities use this hardware to provide calibration and repair support for weapon system maintenance TMDE.

**Mobile Maintenance Shops:** The AN/GSM-705 is a 37-foot semitrailer with a production control desk communications and network rack, five work benches and eight instrument racks necessary to house a calibration set and a LAN. The AN/GSM-421A(V)2 is an 8-foot by 20-foot International Organization for Standardization shelter similar to the AN/GSM-705 with only three benches, two tall racks and two short racks. This system operates at secondary locations with a smaller calibration set and LAN. These Mobile Maintenance Shops are fielded with up-armored prime movers, power generation, environmental control and communication equipment.

**CALSETS:** CALSETS have different capabilities, both to support different requirements and to keep cost down. CALSETS are used in Mobile Maintenance shops and in fixed calibration facilities. The AN/GSM-440 is the primary tactical CALSETS and has the most capability of the mobile sets. This set is capable of supporting more than 90 percent of the types of TMDE in the Army. The AN/GSM-439 Tactical CALSETS is the smallest and has the least capability of the sets. Its primary mission is to support the high-density workload which accounts for 70 percent of Army TMDE. This can be co-located with the AN/GSM-705 or setup in a separate location. The AN/GSM-286 and AN/GSM-287 sets are less capable than the AN/GSM-440 and

used by Table of Distribution(s) and Allowances (TDA) National Guard (NG) and Army civilian organizations to support the NG, industrial base and to also provide support when tactical ATSTs are deployed. The AN/GSM-442 is a training set used at the 94H military occupational specialty school. The Reference Set is a high-accuracy, high-capability set used by TDA civilians to support the field calibration sets and TMDE they can't support. All of these sets are used to ensure measurements made by weapon system maintainers, with their TMDE, are accurate and traceable to national standards.

**LAN:** The AN/GYM-26(V)1 and AN/GYM-26(V)2 are both used to provide a means to perform automated maintenance, download necessary maintenance data and upload test data.

## BENEFIT TO THE SOLDIER

CALSETS provides warfighters with calibration and repair support capabilities for instrumentation and maintenance devices within a theater of operations.

## SPECIFICATIONS

- Various dimensions depending on equipment

## PROGRAM STATUS

- **FY16-FY18:**
  - Sustainment and Modernization:
    - Secondary Transfer Standards Basic, AN/GSM-286
    - Secondary Transfer Standards Augmented, AN/GSM-287
    - Transfer Set, Standards, AN/GSM-439 and AN/GSM-440
  - Production:
    - Calibration Set, Secondary Transfer Standards, AN/GSM-421A(V)2

- Fielding:
  - Secondary Transfer Standards, AN/GSM-421A(V)2 to 12 Active Component and NG Units

### PROJECTED ACTIVITIES

- **2QFY18-2QFY19:**
  - AN/GSM-421A(V)2 continue Production and Fielding
  - Acquisition of 96040A Signal Generator, 5730A Multi-Product Calibrator and Instrument Controller

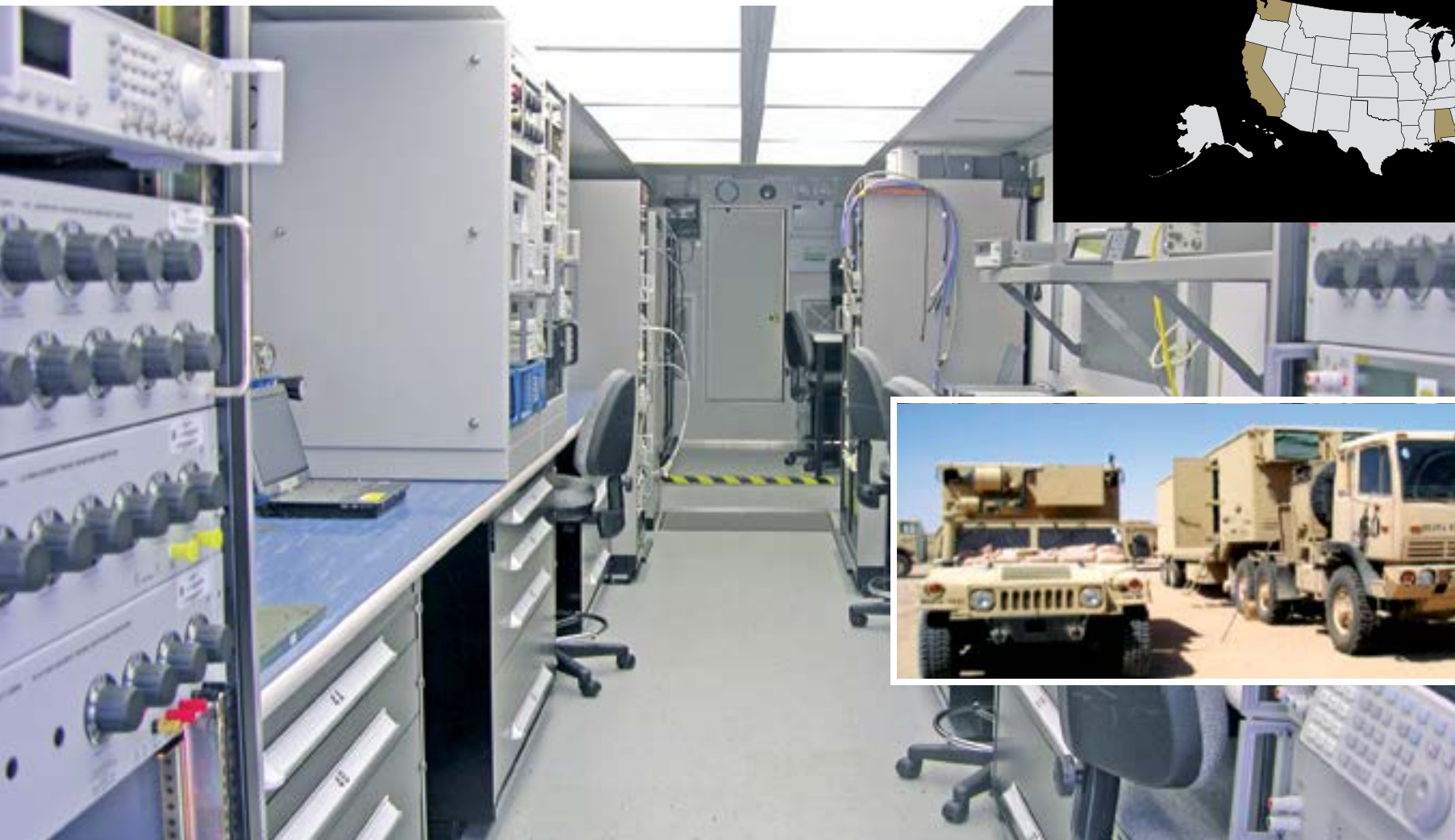
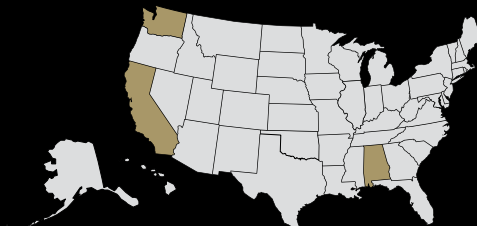
## CALSETS

### FOREIGN MILITARY SALES

Afghanistan, Egypt, Japan, Lithuania, Saudi Arabia, Taiwan and United Arab Emirates

### CONTRACTORS

Dynetics, Inc. (Huntsville, AL)  
Keysight Technologies, Inc. (Santa Rosa, CA)  
Fluke Corp. (Everett, WA)



# Camel II Unit Water Pod System

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Unit Water Pod System (Camel II) is the Army's primary water distribution system. Camel II replaces the M107, M149 and M1112 series water trailers. It consists of an 800- to 900-gallon-capacity baffled water tank with integrated freeze protection and all hoses and fittings necessary to dispense water by gravity flow. The system provides a one-day supply of potable water for drinking and other purposes. If the unit has another source of drinking water, such as bottled water, then the Camel II can provide two days of potable water for other purposes. The system also contains six positions for filling canteens and five-gallon water cans.

## BENEFIT TO THE SOLDIER

The Camel II receives, stores and dispenses potable water to warfighter units at all echelons throughout the battlefield.

## SPECIFICATIONS

- Mounts on an M1095 trailer, allowing for better on- and off-road transportability by utilizing the Family of Medium Tactical Vehicle trucks
- Provides one-day supply of potable water
- Provides two-day supply for purposes other than drinking
- Operational from minus 25 degrees to more than 120 degrees Fahrenheit

## PROGRAM STATUS

- **2QFY18-4QFY18:** Production

## PROJECTED ACTIVITIES

- **1QFY19:** Production
- **1QFY18-4QFY19:** Fielding
- **1QFY20:** Full Operational Capability



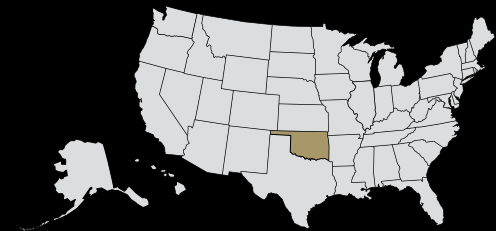
# Camel II

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Choctaw Manufacturing Defense Contractors  
(McCalester, OK)



# Chemical Biological Protective Shelter (CBPS) – M8E1

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The Chemical Biological Protective Shelter (CBPS) is a mobile, self-contained, rapidly deployable, chemically and biologically protected shelter system that provides a contamination-free, environmentally controlled medical treatment area. The CBPS is intended to be fielded to the Army, Army Reserves and Army National Guard.

## BENEFIT TO THE SOLDIER

The CBPS provides medical treatment teams and squads, consisting of four medical personnel, with a contamination-free and environmentally controlled medical treatment area to treat up to eight litter and ambulatory patients without the encumbrance of individual protective clothing and equipment. The CBPS is capable of being transported by ground, rail, sea or air.

## SPECIFICATIONS

- Rigid Wall Shelter
- Heating, ventilation and air conditioning system
- Nuclear, biological and chemical filtration system
- Onboard primary and auxiliary electric power sources
- Deployable chemical biological protective fabric shelter with ambulatory and litter airlocks
- Utilizes a Model M1085 Medium Tactical Vehicle to move the CBPS system as well as the medical treatment team's equipment

## PROGRAM STATUS

- **FY16-FY18:** Produced CBPS units on existing contract
- **4QFY17:** Pine Bluff Arsenal successful First Article Test; completed Technical Manual Validation and Verification
- **2QFY18:** Received Type Classification-Standard and Full Materiel Release decision for 253 M8E1 units; executed initial fielding of M8E1 variant with 11 units fielded to the Republic of Korea

## PROJECTED ACTIVITIES

- **1QFY19:** Follow-On Materiel Release for remaining M8E1 units
- **FY19-FY23:** Production of CBPS units towards completion of Army Acquisition Objective

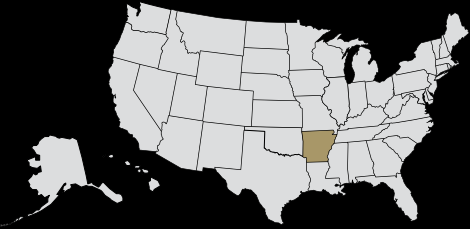
# CBPS — M8E1

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Pine Bluff Arsenal (Pine Bluff, AR)



# Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits and Outfits (CBRN DR SKO)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Chemical, Biological, Radiological, Nuclear (CBRN) Dismounted Reconnaissance Sets, Kits and Outfits (DR SKO) system will consist of commercial and government off-the-shelf equipment that will provide detection, identification, sample collection, decontamination, marking and hazard reporting of CBRN threats, as well as personnel protection from CBRN hazards.

CBRN DR SKO is composed of handheld, man-portable detectors that identify potential Weapons of Mass Destruction (WMD) and WMD precursors, and determine the levels of protection required to assess a sensitive site. The system supports dismounted reconnaissance, surveillance and CBRN site-assessment missions to enable more detailed CBRN information reports for commanders. These site locations may be enclosed or confined, and are therefore inaccessible by traditional CBRN reconnaissance-mounted platforms. CBRN site assessments help planners determine if more thorough analysis is required to mitigate risks or gather intelligence on adversaries' chemical warfare agents, biological warfare agents or toxic industrial material capabilities. Explosive Ordnance Disposal (EOD) variants have been added for U.S. Marine Corps (USMC) and Army EOD units to provide CBRN protection and detection capabilities for use in render safe operations.

## BENEFIT TO THE SOLDIER

CBRN DR SKO provides a comprehensive, all-hazards dismounted reconnaissance and site assessment capability to protect against, detect and decontaminate chemical warfare agents, biological warfare agents, toxic industrial chemicals and other hazards.

## SPECIFICATIONS

- Commercial and government off-the-shelf equipment that will provide detection, identification, sample collection, decontamination, marking and hazard reporting of CBRN threats
- Supports dismounted reconnaissance, surveillance and CBRN site-assessment missions to enable more detailed CBRN information reports for commanders

## PROGRAM STATUS

- **FY16:** USMC CBRN Initial Operational Capability (IOC)
- **FY17-FY18:**
  - Army EOD design
  - Non-traditional Agent Refresh
- **FY17-FY19:** DR SKO Increment 2 Analysis of Materiel Solutions
- **FY18:** USMC CBRN IOC

## PROJECTED ACTIVITIES

- **FY19:**
  - Army EOD IOC
  - Air Force IOC
  - USMC EOD IOC
- **FY20:** Army CBRN Full Operational Capability (FOC)
- **FY21:**
  - Air Force FOC
  - Navy FOC
- **FY23:**
  - Army EOD FOC
  - USMC EOD FOC

# Dismounted Reconnaissance Sets, Kits and Outfits (DR SKO)



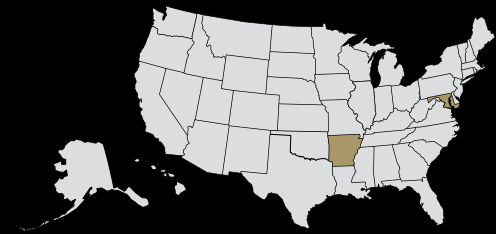
## CBRN DR SKO

### FOREIGN MILITARY SALES

None

### CONTRACTORS

FLIR Systems, Inc. (Elkridge, MD)  
Pine Bluff Arsenal (Pine Bluff, AR)



# Combat Service Support Communications (CSS Comms)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Combat Service Support Communications (CSS Comms) includes the Combat Service Support Automated Information Systems Interface (CAISI) and the CSS Satellite Communications (CSS SATCOM) system. CAISI allows current and emerging battlefield CSS automation devices to electronically exchange information via tactical networks. CAISI provides unit commanders and logistics managers an interface device to support CSS doctrine for full-spectrum operations. CAISI employs a deployable wireless local area network infrastructure linking Army logistics information system computers in a seven square km area. It is certified in accordance with Federal Information Processing Standards 140-2 Level 2. CSS SATCOM includes Commercial Off-The-Shelf, Ku-band, auto-acquire satellite terminals called CSS Very Small Aperture Terminals (CSS VSAT), repackaged in fly-away transit cases, along with a fixed infrastructure of four primary and three continuity of operations (COOP) teleports and high-speed terrestrial links that provide a highly effective, easy-to-use, transportable, SATCOM-based solution to CSS nodes. CSS SATCOM supports information exchange up to the sensitive level, is rapidly deployable anywhere in the world and is fully integrated into the Non-secure Internet Protocol Router Network (NIPRNet).

## BENEFIT TO THE SOLDIER

CAISI allows deployed Soldiers to connect CSS automation devices to a secure wireless network and electronically exchange information via tactical or commercial communications. CSS SATCOM eliminates the often dangerous need for Soldiers to hand deliver requisitions via convoys in combat areas.

## SPECIFICATIONS

- 7 square km wireless local area network infrastructure
- Federal Information Processing Standards 140-2 Level 2

- Ku-band
- Auto-acquire satellite terminals
- Fixed infrastructure of four primary and three COOP teleports and high-speed terrestrial links
- Supports information exchange up to the sensitive information level
- Fully integrated into NIPRNet

## PROGRAM STATUS

- **FY16-FY18:**
  - Maintained operational readiness of the CSS VSAT and CAISI product lines
  - Completed fielding of upgraded iDirect satellite modems for CSS VSAT terminals worldwide

## PROJECTED ACTIVITIES

- **FY19-FY23:** Complete major technical refresh of CSS VSAT and CAISI architecture with modernized hardware

# CSS Comms

## FOREIGN MILITARY SALES

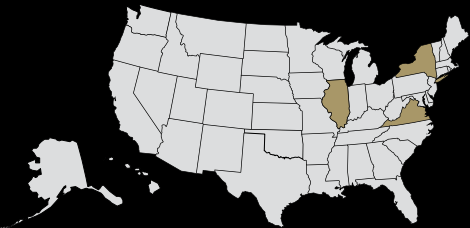
None

## CONTRACTORS

Leonardo DRS (Herndon, VA)

L3 Communication Systems (New York, NY)

Equinix (Rock Island, IL)



# Common Bridge Transporter (CBT)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
**Production & Deployment**  
Operations & Support

## DESCRIPTION

The M1977 Common Bridge Transporter (CBT) is a modified M977 Heavy Expanded Mobility Tactical Truck equipped with a Load Handling System. The M1977 CBT was designed to support the Engineer Corps in transporting all bridging assets. The M1977 CBT loads, launches and retrieves the Standard Ribbon Bridge, Improved Ribbon Bridge and new Bridge Erection Boat utilizing the Bridge Adapter Pallet. It is equipped with a winch to assist in retrieving the deployed equipment. The CBT also transports and launches the Heavy Dry Support Bridge and Rapidly Emplaced Bridge System in Stryker Brigades.

## BENEFIT TO THE SOLDIER

The CBT is an essential component of the Multi-Role Bridge Company (MRBC). The MRBC combines the roles of previous float- and fixed-bridge companies to perform their missions with less manpower and greater flexibility. The Army designed MRBC to give commanders a flexible and adaptable unit that can accomplish both float- and fixed-bridge missions. The objective is to have each MRBC be 100 percent mobile (every bridge load is on a prime mover or a trailer) and take advantage of product standardization.

## SPECIFICATIONS

- Payload: 24,000 pounds
- Configuration: 8 feet by 8 feet
- Fording capability: 48 inches
- Grade: 60 percent

## PROGRAM STATUS

- **FY16-FY18:** Produced and fielded over 400 M1977A4s (latest variant)

## PROJECTED ACTIVITIES

- **Current:** Ongoing contract for Recapitalization



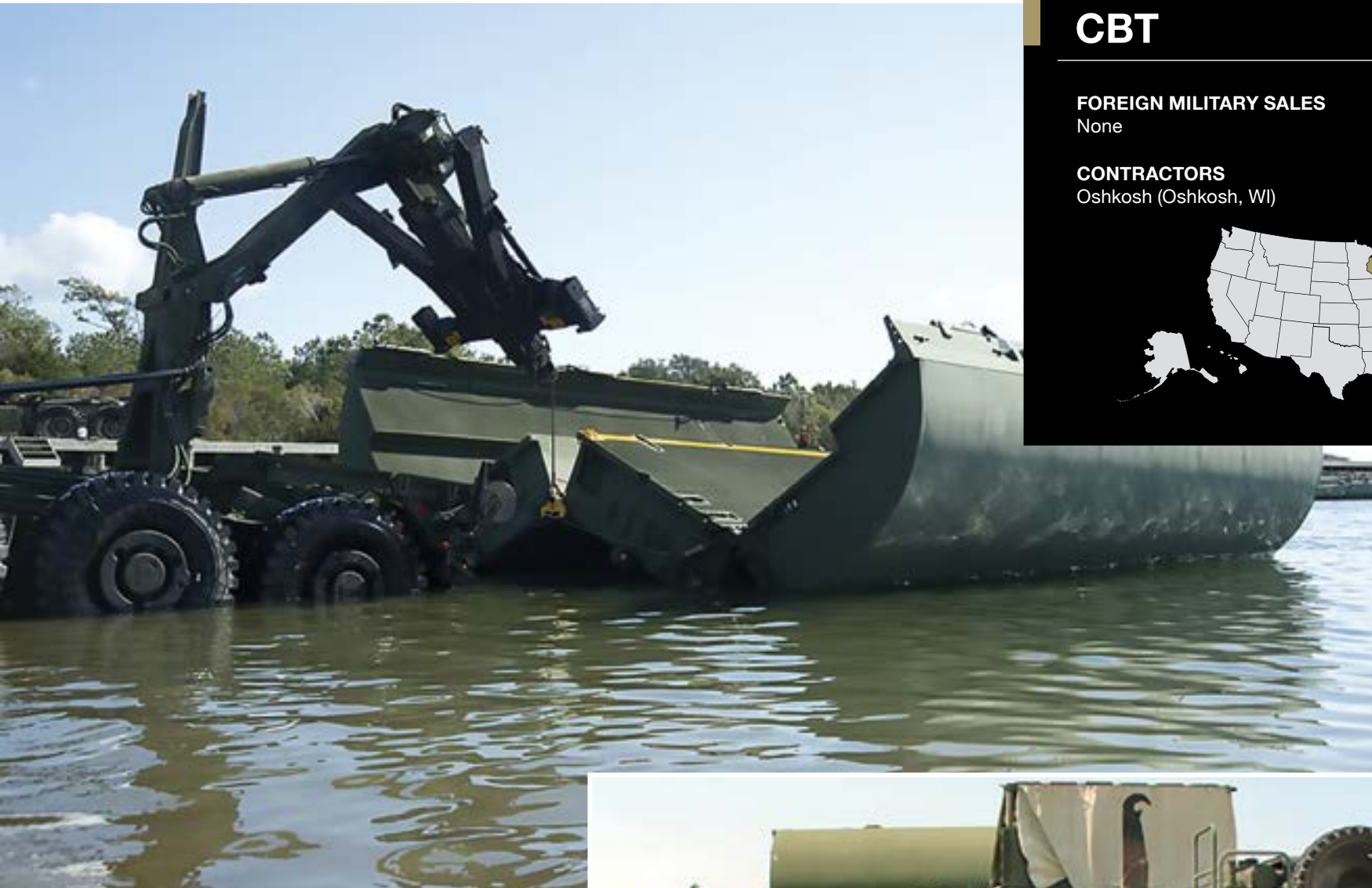
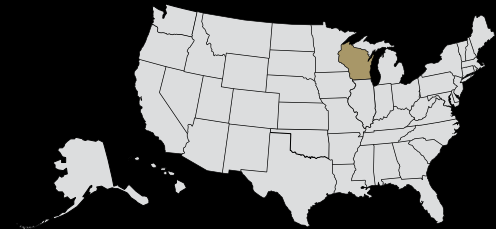
# CBT

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Oshkosh (Oshkosh, WI)



# Common Hardware Systems (CHS)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Common Hardware Systems (CHS) acquire and support sustainment of highly flexible, cost-effective, common and simplified nondevelopmental Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance solutions. CHS improves battlefield interoperability and connectivity while garnering efficient competition and enabling the latest commercial technology solutions to be integrated onto the Army tactical network and Combat Systems.

## BENEFIT TO THE SOLDIER

The CHS program office enables the Operating Force through a holistic approach to acquire commercial Information Technology (IT), to include Commercial Off-The-Shelf IT and non-developmental items, utilizing the most effective and efficient means to meet program offices' tactical and operational requirements. CHS also enables the Army's crew-served tactical tracked and wheeled vehicles and command posts to gain the decisive edge on the battlefield by providing a reliable, robust and scalable command, control and communications intercom system. The CHS-4 and VIC-5 contracts provide the procurement mechanisms to meet Army and Department of Defense requirements.

## SPECIFICATIONS

- **Streamlined Rapid Acquisition Process:** CHS provides rapid acquisition capability for all requirements, including engineering support, hardware, sustainment and services
- **Rapid Execution:** CHS works with stakeholders to facilitate the rapid execution of technology insertions, delivery orders and task orders

- **Configuration Management:** CHS-4 contract provides a mechanism to preserve hardware configurations, including designs for integrated solutions and kits to ensure interoperability with networked systems as well as continued information assurance compliance
- **End of Life Management:** CHS works with prime vendor and original equipment manufacturers to manage technology obsolescence
- **Replacement Configurations:** CHS communicates with programs to identify next generation replacement configurations to ensure requirements continue to be met
- **Emerging Technologies:** CHS works with programs and industry to coordinate new commercial information technologies onto the Army's tactical network; CHS hosts industry roadmaps and technology demonstrations to facilitate collaboration between Original Equipment Manufacturer and program offices

## PROGRAM STATUS

- **FY16-FY18:**
  - Managed acquisition and delivery of CHS equipment in support of customer requirements
  - Award CHS-5 Contract

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Continue management and delivery of CHS equipment in support of customer requirements
  - CHS-6 contract acquisition competition

# CHS

## FOREIGN MILITARY SALES

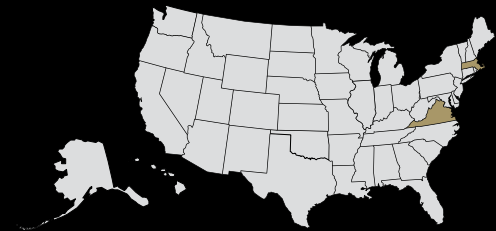
None

## CONTRACTORS

**CHS-4 Production Contract:** General Dynamics (Taunton, MA)

**Systems Engineering, Testing and Analysis**

**Support:** Booz Allen Hamilton (Washington, DC) and Bowhead (Alexandria, VA)



# Common Robotic System-Individual (CRS(I))

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Common Robotic System-Individual (CRS(I)) enables dismounted forces to provide a capability for lower-level Reconnaissance, Surveillance and Target Acquisition to enhance maneuvers and force protection.

CRS(I) establishes the Army's common small-base platform with a lightweight (less than 25 pounds), highly mobile, unmanned robotic system that includes standard payloads, advanced sensors and mission modules for dismounted forces.

The system is designed for quick reconfiguration for various missions by adding or removing modules or payloads. The CRS(I) system includes a Universal Controller (UC) that has the ability to achieve and maintain active or passive control of any current Army or Marine Corps program of record (battalion and below), as well as any unmanned (air or ground) system or its respective payload. The UC will have the ability to control the Puma, Raven, Man Transportable Robot System Increment 2 and Common Robotic System-Heavy.

## BENEFIT TO THE SOLDIER

CRS(I) is ideal for clearing buildings, caves and other restricted terrain where close-quarters combat is likely. CRS(I) identifies enemy positions, explosive hazards and civilians without exposing the warfighter.

## SPECIFICATIONS

- Common small-base lightweight (less than 25 pounds) platform
- Highly mobile unmanned robotic system that includes standard payloads, advanced sensors and mission modules for dismounted forces

## PROGRAM STATUS

- **1QFY16:** Materiel Development Decision
- **2QFY16:** Capability Development Document approved
- **2QFY18:**
  - Milestone B
  - Engineering and Manufacturing Development Contract awarded to two vendors

## PROJECTED ACTIVITIES

- **FY19:** Capability Production Document
- **2QFY19:** Milestone C

## CRS(I)

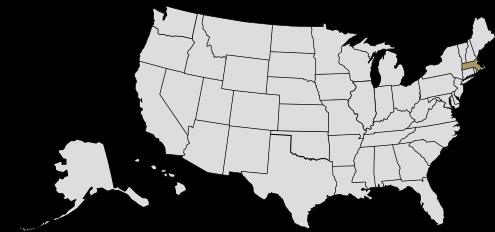
### FOREIGN MILITARY SALES

None

### CONTRACTORS

Endeavor Robotics (Chelmsford, MA)

QinetiQ North America (Waltham, MA)



**PROGRAM**  
**UNDER DEVELOPMENT**

# Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-based Phalanx Weapon System (LPWS)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-based Phalanx Weapon System (LPWS) program evolved from the operational success of the C-RAM system-of-systems effort in theater. It transitioned to an acquisition program to provide counter-RAM protection to the Indirect Fire Protection Capability (IFPC)/Avenger Battalions, 5th Battalion, 5th Air Defense Artillery (ADA) Regiment and 2nd Battalion, 44th ADA Regiment. C-RAM Intercept LPWS provides IFPC/Avenger battalions with the ability to defend against and defeat enduring Indirect Fire (IDF) threats.

Countering IDF threats requires a holistic design approach. C-RAM Intercept LPWS works with the C-RAM system-of-systems architecture and with other program of record systems to provide the complete suite of C-RAM capabilities. The major components interoperating with C-RAM Intercept LPWS at the IFPC/Avenger battalions include Air and Missile Defense Planning and Control System shelters; RAM Warn hardware; C-RAM Communications Network; C-RAM Command and Control workstations; and multiple counter-fire target acquisition radars, including AN/TPQ-50 Lightweight Counter Mortar Radars, AN/TPQ-53 radars, Sentinel radars and Ku-band Radio Frequency System radar.

In 2013, the Army Acquisition Executive (AAE) designated C-RAM Intercept an Army acquisition program and authorized fielding of LPWS guns and support equipment to the IFPC/Avenger battalions. Fielding is ongoing.

## BENEFIT TO THE SOLDIER

C-RAM Intercept LPWS provides C-RAM protection to warfighting personnel and high-value assets by detecting RAM launches and intercepting rounds in flight. To date, the C-RAM Intercept LPWS capability is credited with more than

375 successful intercepts of rockets and mortar rounds fired at high-value theater assets, with no fratricides or collateral damage.

## SPECIFICATIONS

- Primary component is the LPWS, a modified U.S. Navy Phalanx Close-In Weapon System mounted on a commercial 35-ton semitrailer for land-based operations
  - Weight: 58,000 pounds
  - Dimensions with Prime Mover: 65 feet long x 12 feet wide x 14 feet high
  - Prime Mover: M916A3
  - Crew Size: Four
- M61A1 20 mm Gatling gun capable of onboard target acquisition and fire control
  - Max/Sustained Rate of Fire: 4,500 rounds per minute
  - ~300 rounds per typical engagement
- LPWS barrels optimized for use with M940 ammunition
  - M940 designed to self-destruct beyond 2,000 meters to minimize collateral damage
- Integrated search-and-track radars detect and engage wide range of IDF threats
- C-RAM command and control system integrates sensors, weapons and warning systems

## PROGRAM STATUS

- **3QFY16:** C-RAM Intercept LPWS Conditional Materiel Release (CMR)
- **1QFY17:** AAE approval to field under CMR
- **4QFY17:** LPWS Spiral 6.4.1 software Urgent Materiel Release (UMR)
- **2QFY18:** LPWS/Counter-Unmanned Aircraft Systems engineering test
- **3QFY18:** LPWS Cruise Missile Defense capability demonstration

- **4QFY18:** LPWS Spiral 6.4.3 software UMR

**PROJECTED ACTIVITIES**

- **2QFY19-2QFY20:** Logistics demonstration training, execution and verification
- **3QFY20:** LPWS Spiral 6.4.1 software Full Materiel Release
- **3QFY21:** Transition to Sustainment (organic, Army)

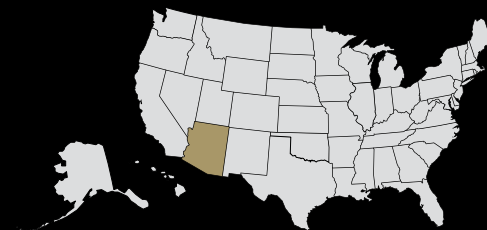
# C-RAM Intercept LPWS

**FOREIGN MILITARY SALES**

None

**CONTRACTORS**

Raytheon Missile Systems (Tucson, AZ)



# Defense Enterprise Wideband SATCOM System (DEWSS)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Defense Enterprise Wideband SATCOM System (DEWSS) provides strategic satellite communication systems and satellite network control and planning systems for the Defense Satellite Communications (SATCOM) and the Wideband Global SATCOM (WGS) system satellite constellations. DEWSS includes two major capabilities:

- **Wideband Satellite Operations and Management System (WSOMS)** enables the Army to efficiently plan and manage the global SATCOM network.
- **The Enterprise Wideband Satellite Terminal System (EWSTS)** provides large aperture satellite communication terminals and associated satellite modems, multiplexers, routers and supporting telecommunications equipment to strategic Army SATCOM Gateway facilities worldwide.

These WSOMS and EWSTS systems are integrated into a system-of-systems architecture supporting: strategic communications infrastructure; presidential communications; the Department of Defense (DOD) Information Network; Army LandWarNet; the Ballistic Missile Defense System Communications Network; and tactical reachback for deployed forces through SATCOM Gateways facilities around the world.

## BENEFIT TO THE SOLDIER

Highly available strategic military satellite communication systems enable warfighters to execute worldwide command and control of deployed forces worldwide.

## SPECIFICATIONS

- Network planning and satellite control systems enable joint use of the WGS system for DOD users

- Provides super high-frequency military X-Band and Ku-Band satellite communication terminals
- Blend of military standard and Commercial Off-The-Shelf communication equipment ensures highly available network with 99.9 percent operational availability

## PROGRAM STATUS

- **FY16-FY18:**
  - Completed Fielding of nine additional AN/GSC-52B satellite terminals under the Modernization of Enterprise Terminals program
  - Completed all satellite control architecture changes to support the expanded 10 satellite WGS constellation
  - Completed power distribution upgrades at all U.S. Army SATCOM Gateway facilities to improve system reliability and availability

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Complete all remaining AN/GSC-52B satellite terminal fieldings for U.S. Army SATCOM Gateways
  - Complete installation modernized equipment into new SATCOM Gateway facilities at Camp Roberts, California; Fort Buckner, Japan; and Landstuhl, Germany





# DEWSS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

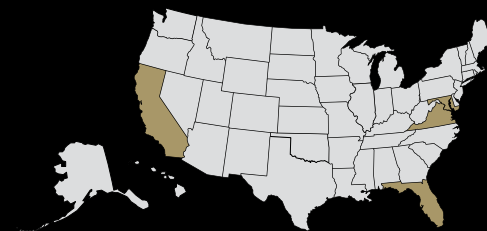
Harris (Melbourne, FL)

Northrop Grumman (Manassas, VA)

IAP Inc. (McLean, VA)

Boeing (Huntington Beach, CA)

Johns Hopkins University Applied Physics Laboratory (Laurel, MD)



# Early Entry Fluid Distribution System (E2FDS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation & Risk Reduction  
Engineering & Manufacturing Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

During the early phases of operations, the Early Entry Fluid Distribution System (E2FDS) is employed to throughput large quantities of petroleum or water while reducing the requirement for line-haul semitrailers, relieving main supply route congestion.

E2FDS is a high-throughput flexible conduit system used for the transport of bulk petroleum or water on the modular battlefield. It is a rapidly emplaced conduit system capable of moving 850,000 gallons of fuel or 650,000 gallons of raw (nonpotable) water a distance of up to 50 miles in a 20-hour period. This new materiel system enhances the Inland Petroleum Distribution System (IPDS) by providing an early entry capability for petroleum throughput, as well as a means to rapidly extend existing pipeline traces or establish new traces during later phases of operations. The system is emplaced at a rate of 25 miles per day and retrieved at 10 miles per day.

The E2FDS is positioned and operated by Military Occupational Specialty 92F (petroleum supply specialist) and requires minimal engineering support to emplace the conduit or pump stations. Pump stations are centrally controlled to enable rapid and precise synchronization during pumping operations.

## BENEFIT TO THE SOLDIER

E2FDS enables a more rapid setup of the conduit trace, and the automation and centralized control enables greater precision of pipeline operations. Once the IPDS pipeline is put in place, E2FDS can be used to extend the pipeline trace as a backup system or be moved to another location.

## SPECIFICATIONS

- Comprised of flexible conduit, employment and retrieval systems
- Includes conduit support equipment (valves, couplings and joints), pump stations and a centralized control module
- Components are packed in International Organization for Standardization configuration for deployment and are Heavy Expanded Mobility Tactical Truck-Load Handling System, Palletized Load System (PLS) and PLS Trailer transportable

## PROGRAM STATUS

- **4QFY16:** Milestone B
- **1QFY18:** Preliminary Design Review
- **3QFY18:** Critical Design Review

## PROJECTED ACTIVITIES

- **2QFY19:** Contractor demonstration testing
- **4QFY19:** Milestone C
- **3QFY20:** First Unit Equipped
- **4QFY21:** Full Operational Capability

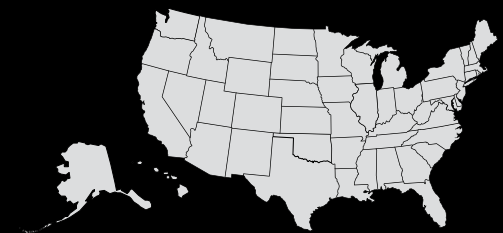
# E2FDS

**FOREIGN MILITARY SALES**

None

**CONTRACTORS**

TBD



**PROGRAM**  
**UNDER DEVELOPMENT**

# Expeditionary Water Packaging System (EWPS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Expeditionary Water Packaging System (EWPS) provides on-site water bottling capability, eliminating transportation requirements and risks. EWPS is a completely containerized, fully automated water packaging system that fills and caps one-liter bottles with potable water for individual Soldier consumption. The EWPS features end-to-end automated production within a closed, hygienic environment.

## BENEFIT TO THE SOLDIER

EWPS reduces the distribution footprint for bottled water and the casualties associated with line-haul distribution. It provides inherent safety and health benefits by reducing Soldier contamination at bulk system fill points and minimizes the cost associated with procuring and transporting bottled water.

## SPECIFICATIONS

- Fills 900 one-liter plastic bottles per hour, powered by standard military tactical generator sets
- Compatible with standard military Environmental Control Units

## PROGRAM STATUS

- **4QFY16:** Source Selection Evaluation Board
- **3QFY17:**
  - Milestone C Approval
  - Production Contract Award
- **4QFY18:** Production Verification Test

## PROJECTED ACTIVITIES

- **4QFY19:** Type Classification
- **1QFY20:** Fielding of one system to Army Prepositioned Stock

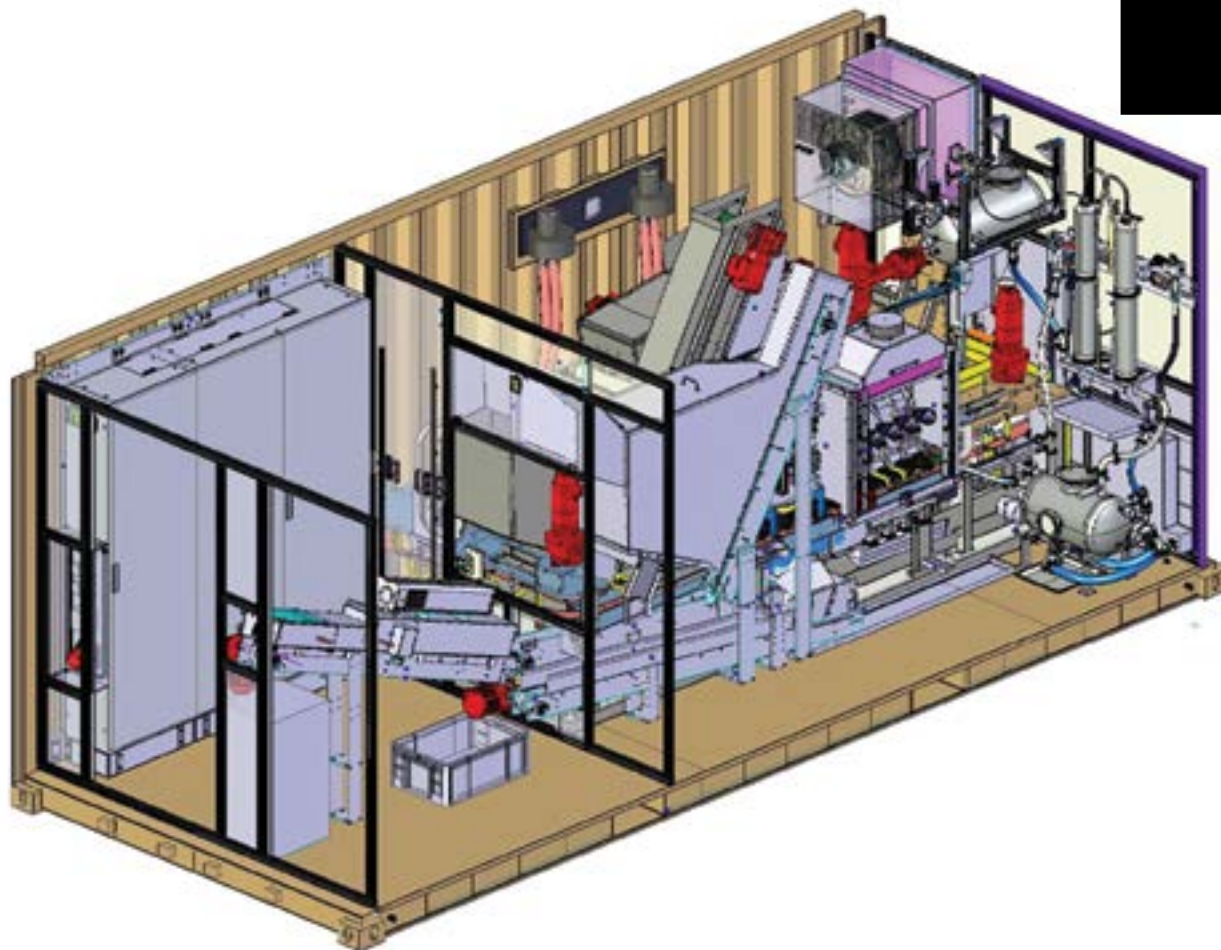
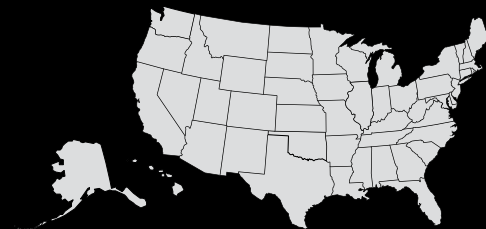
# EWPS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



# Family of Engineer Combat and Construction Sets (ECACS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The Family of Engineer Combat and Construction Sets (ECACS) consists of engineer sets that aid in the detection, protection, surveillance, evacuation and clearance of buildings as well as facilities repair, road construction and other construction engineering tasks. Hydraulic, Electric, Pneumatic, Operated Equipment (HEPPOE) provides engineer units with an effective means to operate hydraulic-electric-pneumatic tools in a non-power-sourced location while conducting theater-of-operation repair and construction tasks.

Urban Operations Platoon Set (UOpPS) provides the tools needed to mitigate gaps such as explosive detection and early and forcible entry, which enhances the engineer force's capability to rapidly shape the operational environment. This set also contains the only equipment that allows engineer platoons to safely breach hardened underground facilities during subterranean operations. The Soldier-portable tool load is composed of high-tech, Commercial Off-The-Shelf (COTS) items contained in five ruggedized cases.

Urban Operations Squad Set (UOpSS) provides combat engineers the ability to conduct operations in urbanized, complex and subterranean areas utilizing various breaching and marking techniques. The Soldier-portable tool load is composed of low-tech COTS items transportable in four canvas bags.

The Vertical Skills Engineer Construction Kits (VSECK) effort combines eight existing sets into a family of six systems which include hand and power tools used by carpenters, plumbers, pipefitters, electricians, and concrete and masonry craftsmen. VSECK systems leverage the latest in technological advances to support tactical missions providing means for security,

stability, transition and reconstruction across Unified Land Operations.

## BENEFIT TO THE SOLDIER

ECACS equips the warfighter with the tools necessary to perform detection, protection, surveillance and evacuation as well as any construction engineer task needed for urban and rural environments.

## SPECIFICATIONS

- **HEPPOE:** Includes two portable multi-powered units and 13 lift cases of tools such as pavement breakers; concrete vibrators; concrete and wood chainsaws; sump pumps; various drills and saws; sanders and grinders; and post pullers
- **UOpPS:** Includes vapor and trace explosives detector; Power Hawk rescue system; under-door remote-viewing instrument; articulating fiberscope; pole-mounted infrared camera; exothermic cutting torch; and portable hand-held welder
- **UOpSS:** Includes urban assault bridging/climbing ladders; breaching kit; rappelling kit; mechanical entry tools; and marker light sticks
- **VSECK:** Includes hand tools, cordless tools and power tools containerized for transportability and accountability

## PROGRAM STATUS

- **4QFY18:** Platoon/Squad Follow-on Contract Award
- **3QFY19:** HEPPOE Follow-on Contract Award

## PROJECTED ACTIVITIES

- **3QFY18:** VSECK, Type Classification – Standard
- **4QFY18:** VSECK, First Unit Equipped
- **FY19:** Ongoing Production and Fielding for HEPPOE, UOpPS, UOpSS and VSECK

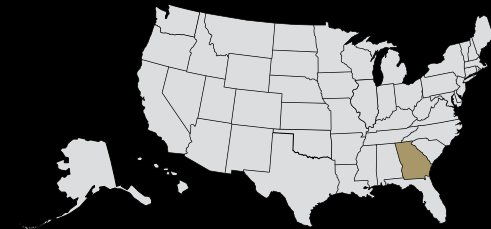
# ECACS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Kipper Tool Company (Gainesville, GA)



**Hydraulic, Electric, Pneumatic,  
Petroleum Operated Equipment  
(HEPPOE)**



**Urban Operations  
Squad & Platoon Sets**



**Vertical Skills Engineer  
Construction Kits (VSECK)**

# Family of Weapon Sights – Crew Served (FWS-CS)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Family of Weapon Sights – Crew Served (FWS-CS) will mount to the M240 Medium Machine Gun, the M2 .50-Caliber Machine Gun and the MK19 Grenade Machine Gun and will provide the Soldier with High-Definition (HD) infrared (thermal) imagery in all weather conditions, under all lighting conditions and through obscurants. The FWS-CS will also integrate an HD day camera, a laser rangefinder and a wireless Helmet Mounted Display (HMD).

## BENEFIT TO THE SOLDIER

The EWPS reduces the distribution footprint for bottled water. The FWS-CS HD thermal sensor and HD day camera will provide Soldiers with a long-range capability for crew-served weapons. The FWS-CS integrated laser rangefinder will support a ballistic crosshair that shifts based on the target range, enabling Soldiers to get first bursts on target. The FWS-CS wireless HMD allows the Soldier to receive weapon sight imagery while behind protective armor and when using a weapon system with the Objective Gunners Protection Kit.

## SPECIFICATIONS

- Man-sized target recognition at night: 70 percent probability at 2,400 meters (threshold) and 2,600 meters (objective)
- Man-sized target recognition through smoke or other obscurants: 90 percent probability at 500 meters (threshold) and 600 meters (objective)
- Total system weight: Less than or equal to 3.25 pounds (threshold) and 2.5 pounds (objective)
- Field-of-view: Greater than or equal to 9 degrees (threshold) and 18 degrees (objective)

## PROGRAM STATUS

- **2QFY17:** Preliminary Design Conference
- **3QFY17:** Component Critical Design Review
- **4QFY17:** System Critical Design Review
- **4QFY18:**
  - BAE Contractor Developmental Test
  - BAE Government Development Test (GDT)

## PROJECTED ACTIVITIES

- **1QFY19:** Reliability Growth Test (RGT) (mini – BAE)
- **2QFY19:**
  - GDT (DRS)
  - RGT (mini-DRS)
- **3QFY19:** RGT-1 start
- **4QFY19:** Milestone C Decision



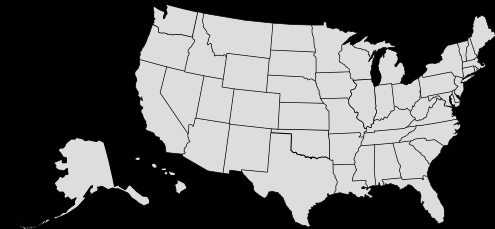
# FWS-CS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



**HMD**



**Family of Weapon Sights-Crew Served (FWS-CS)**

# Ground Mobility Vehicle (GMV)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Ground Mobility Vehicle (GMV) provides enhanced tactical mobility for an Infantry Brigade Combat Team (IBCT) nine-Soldier infantry squad with their associated equipment to move quickly around the battlefield, to include medium distance insertion or repositioning operations. This allows commanders greater freedom of movement and freedom of action.

## BENEFIT TO THE SOLDIER

GMV provides flexibility for entry operations (permissive and non-permissive) to counter threat anti-access strategies through the use of multiple austere entry points via air-drop, air-land and/or air-insertion.

## SPECIFICATIONS

- 9-man, Low Velocity Airdrop (LVAD)-capable, CH-47 internal transport

## PROGRAM STATUS

- **FY16-FY18:** Safety, performance and endurance testing in support of Army-GMV 1.1 Urgent Materiel Release completed
- **3QFY18:** Contract Award
- **3QFY18-1QFY19:** LVAD testing anticipated

## PROJECTED ACTIVITIES

- **4QFY18:** First Unit Equipped
- **3QFY20:** Full Operational Capability (five Airborne IBCTs)

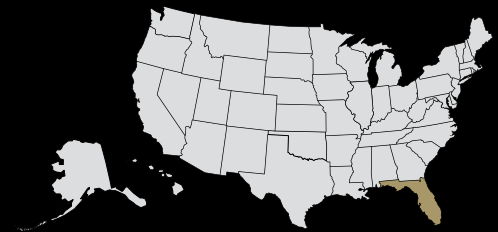
# GMV

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Dynamics Ordnance and Tactical Systems  
(St. Petersburg, FL)



# Guardrail Common Sensor (GRCS)

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Guardrail Common Sensor (GRCS) is a legacy Special Electronic Mission Aircraft that has been providing critical Aerial Intelligence, Surveillance and Reconnaissance (AISR) capability for over 45 years. Guardrail was originally built as a Cold War system to provide indications and warnings against adversaries in both the European and Pacific Theaters of Operation. The Guardrail system has been modernized since inception to maintain relevancy and to enable continued prosecution of emerging threats within the changing battlespace.

GRCS is the Army's current integrated Signals Intelligence (SIGINT) platform that provides near real-time targeting information to tactical commanders and supports full-spectrum operations. GRCS is hosted on a fixed-wing aircraft (King Air B200), designated RC-12X, and is the Army's premiere airborne SIGINT-collection and precision targeting location system. The GRCS fleet is comprised of 14 mission aircraft supporting multiple combatant commands and five training platforms. In Fiscal Year 2018, the GRCS mission aircraft's economic useful life was extended until 2034.

GRCS sensor capability produces high-accuracy Communications Intelligence (COMINT) and Electronics Intelligence (ELINT) for battlefield mapping of common and modern signals of interest for detection, identification and geolocation of known threats. The Distributed Common Ground System-Army (DCGS-A) Operational Ground Station (OGS) processing, exploitation and dissemination capabilities allow for real-time signal exploitation and reporting, ensuring information dominance to commanders. GRCS data and payload tasking and mission operations support are provided by the 116th Military Intelligence Brigade at Fort Gordon, Georgia. The standard concept of operations supports both single-ship, multiship and cooperative operations utilizing Tactical Common

Data Links (TCDL) and network based infrastructure back to Continental United States (CONUS) based garrison locations where it is correlated, exploited and disseminated to supported commands.

## BENEFIT TO THE SOLDIER

The GRCS SIGINT capabilities enable the exploitation of common and modern signals spanning a large frequency band with precision accuracy. Ground processing software and hardware are part of the Army Tactical SIGINT Baseline and are interoperable with DCGS-A OGS and CONUS garrison locations, which reduces the forward deployed footprint significantly. The warfighter will benefit from planned improvements through Guardrail modernization efforts, including near term technical refresh efforts for the ELINT and COMINT subsystems utilizing software defined open architecture as well as cockpit avionics upgrades. GRCS is the only AISR platform in the Army's inventory that is currently certified for precision long-range fires support.

## SPECIFICATIONS

- Integrated COMINT and ELINT collection and reporting
- Enhanced signal classification and recognition and precision emitter geolocation
- Advanced integrated aircraft cockpit
- TCDL

## PROGRAM STATUS

- **FY16:** Began Pilot Situational Awareness Monitor Mod with first article induction
- **FY17:** Began aircraft avionics upgrade to meet military and civilian requirements for communication, navigation and surveillance to meet Global Air Traffic Management (GATM) requirements and enhanced MODE-5 Identification Friend or Foe (IFF) capability

- **FY18:**
  - Completed High-Frequency ARC-220 Radio modification allowing for Beyond Line-of-Sight communications during ferry operations
  - Awarded contract for COMINT and ELINT subsystem upgrades to improve performance and address obsolescence issues
  - Upgraded COMINT system software to meet urgent Operation Needs Statement
  - Increased GRCS cooperative SIGINT capability by migrating all subsystems to Joint Interface Control Document compliance
- **FY16-FY18:** Continued support to worldwide contingency operations

### PROJECTED ACTIVITIES

- **FY19:**
  - Complete aircraft avionics upgrade to meet military and civilian requirements for communication, navigation and surveillance to meet GATM requirements and enhanced MODE-5 IFF capability
  - Complete Pilot Situational Awareness Modification – provides pilots with moving map capability
- **FY20-FY21:**
  - Upgrade ARC-201 Ultra High-Frequency Radio to address obsolescence issues
  - Upgrade Global Positioning System (GPS) antennae to address Assured Positioning, Navigation and Timing (A-PNT) requirements
- **FY20-FY24:** Upgrade COMINT and ELINT subsystem for mission aircraft to maintain tactical relevancy within the AISR layer and address multiple obsolescence and diminishing manufacturing source issues
- **FY22-FY24:** Upgrade embedded GPS/Inertial Navigation System to improve capability and meet A-PNT requirements

## GRCS

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Adams Communications & Engineering Technology (Waldorf, MD)

Systems Engineering Solutions, Inc. (Huntsville, AL)

Lockheed Martin (Owego, NY)

Zeta Associates (Fairfax, VA)

Argon ST (Mountain View, CA)

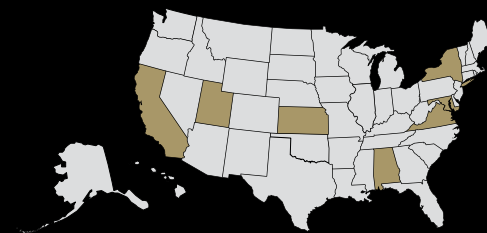
L3 Communication Systems - West (Salt Lake City, UT)

Northrop Grumman Mission Systems (Sacramento, CA)

Northrop Grumman Information Technology (Carson, CA)

Northrop Grumman (Herndon, VA)

Textron Aviation (Wichita, KS)



# Heavy Equipment Transporter System (HETS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Heavy Equipment Transporter System (HETS) consists of two pieces of equipment: the M1070 tractor and the M1000 semitrailer. The HETS tractor is used in combination with the M1000 trailer to transport the M1 Series Abrams tank and other heavy tracked and wheeled vehicles weighing up to 140,000 pounds during administrative and tactical operations. The HETS is capable of both on- and off-road operations over a variety of terrains and slopes, as well as temperature extremes from minus 50 degrees to 120 degrees Fahrenheit. The tractors are capable of seating six occupants (driver, commander and 4-person tank crew) and have a heavy-duty, fully oscillating fifth wheel with a 3.5-inch kingpin and a central tire inflation system.

## BENEFIT TO THE SOLDIER

HETS is a critical part of the distribution system; it is the sole military asset capable of highway transport of the Army's main battle tank. It also transports oversized and overweight equipment from port of debarkation to forward areas or to/from base camps. The HETS will support missions through the full spectrum of military operations from peacetime to war. HETS has been designated Chemical, Biological, Radiological and Nuclear (CBRN) defense mission critical, as listed on the CBRN Mission Critical Report. It performs recovery, though limited, and evacuation missions. The HETS reduces the amount of time necessary to relocate combat forces, thus facilitating the reception, staging, onward movement and integration process of initial and follow-on forces.

## SPECIFICATIONS

- **M1070A0 HETS Tractor**
  - Gross Combined Weight Rating (GCWR): 231,400 pounds
  - Detroit Diesel 8V92 500 HP engine
  - Allison CLT-754 transmission (5-speed automatic)
  - Two-speed transfer case

### • M1070A1 HETS Tractor

- GCWR: 238,500 pounds
- Caterpillar 700 HP C-18 engine
- Allison 4800SP transmission (7-speed automatic)
- Single-speed transfer case
- Upgraded Axle Ratings, Front: 32,000 pounds; Rear – 25,000 pounds
- Upgraded Wheels: 16,000 pounds rating
- Electrical: 24 volts
- Upgraded Alternator: 400 amps
- Antilock Brake System with traction control
- Standard air-conditioning
- Improved electrical system J1939 capable of future support of diagnostic/prognostic maintenance systems
- Cab with integrated underbelly and firewall armor panels

### • M1000 HETS Trailer

- Low-bed, fifth-wheel trailer that includes 5-axle rows
- 4 hydraulically steered rows of bogie axles
- 40 wheels
- Operator-adjusted and -leveled hydraulic suspension
- Single-cylinder, diesel engine auxiliary power unit to operate hydraulic suspension, gooseneck and steering systems

## PROGRAM STATUS

### • FY16-FY18:

- HETS, including the M1070, M1070A1 and M1000 production, is complete and transitioned to Sustainment (Integrated Logistics Support Center, U.S. Army Tank-automotive and Armaments Command, Michigan)

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Complete the armored cab Technical Data Package and Logistics products. The armored cab will be produced organically at Rock Island Arsenal, Illinois. The Army plans to build 99 armored cabs for Army Prepositioned Stock.
  - U.S. Army Europe (USAREUR) HETS Operational Needs Statement is a solution designed for USAREUR to deliver increased payload capability while gaining road permissions. This includes a modification of the M1070A1 tractor and procurement of a modified commercial trailer.
  - Enhanced HETS (EHETS) is in a pre-Materiel Development Decision analysis of alternatives phase. The EHETS is intended to replace the legacy HETS to fill multiple identified capability gaps with this system.



# HETS

**FOREIGN MILITARY SALES**  
None

**CONTRACTORS**  
**Vehicle:** Oshkosh (Oshkosh, WI)  
**Trailer:** Leonardo DRS (St. Louis, MO)

A map of the United States with Wisconsin and Missouri highlighted in yellow. The rest of the map is white with black outlines for the states.

# High Mobility Engineer Excavator (HMEE) I and III

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The High Mobility Engineer Excavator Type I (HMEE-I) is a nondevelopmental military vehicle fielded to the Army's Brigade Combat Teams (BCT) and other selected engineering units. Tasks performed by the HMEE-I and III include repair and improvement of roads, trails, bridges and airfields.

The high mobility of the HMEE-I provides earth-moving machines capable of maintaining pace with the Army's current combat systems. All HMEE-I will be capable of accepting armor in the form of an armor cab (Crew Protection Kit), are C-130 transportable without armor, and diesel driven. HMEE-I replaces Small Emplacement Excavators in BCT and HMEE-I in Stryker BCT. The HMEE-I is employed in Infantry BCT, Armored BCT, Stryker BCT, Multi-Role Bridge Companies and Engineering Support Companies.

The HMEE-III Backhoe Loader is a Commercial Off-The-Shelf backhoe loader with military modifications to include an armored cab designed for units that are relatively stationary and do not require speed and rapid deployability. The HMEE-III is used by Combat Support Brigades in general construction tasks. It is employed by Horizontal and Vertical Construction Units, and other nonengineering units such as Military Police and Quartermaster Units.

## BENEFIT TO THE SOLDIER

HMEE clears rubble and debris from routes and airfields. It provides survivability positions for critical assets like communication, control, radar and logistics, and improves ford sites.

## SPECIFICATIONS

### HMEE-I:

- **Maximum speed:** 60 mph on improved roads; 25 mph on secondary roads
- **Lift and load:** 1.5 cubic yards
- 13 total attachments

### HMEE-III:

- **Maximum speed:** 60 mph on improved roads; 7 mph off roads
- **Weight:** approximately 18,700 pounds

## PROGRAM STATUS

- **FY16-FY18:** HMEE-I Fielding

## PROJECTED ACTIVITIES

- **4QFY18:** Production contract extension to be awarded
- **2QFY19:** Production contract to be awarded that will field vehicles out through FY24





## HMEE I and III

### FOREIGN MILITARY SALES

**HMEE-I:** Israel and New Zealand

**Original Equipment Manufacturer (OEM) Direct Sales:** Australia, Germany, Sweden, United Arab Emirates and United Kingdom

### CONTRACTORS

**HMEE-I OEM:** JCB (Pooler, GA)

**Armor:** ADSI (Hicksville, NY); JCB (Pooler, GA)

**Logistics:** XMCO Inc. (Warren, MI)

**HMEE-III Backhoe Loader OEM:** Case New Holland (Racine, WI)

**Armor:** BAE Systems (Columbus, OH)

**Logistics:** XMCO Inc. (Warren, MI)



# Improved Environmental Control Units (IECU)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Improved Environmental Control Unit (IECU) program consists of three systems in the following sizes: 9,000 British thermal units per hour (Btuh); 18,000 Btuh; 36,000 Btuh; and one skid-mounted unit of 60,000 Btuh. The IECU systems provide critical cooling to vital military electronic and support systems and equipment for the Army and Department of Defense.

## BENEFIT TO THE SOLDIER

IECU systems provide quality cooling, heating and dehumidification for command posts; command, control, communications, computers, intelligence, surveillance and reconnaissance systems; weapon systems; and other battlefield operating systems while using a non-ozone depleting refrigerant.

## SPECIFICATIONS

- Form, fit and function replacement of military standard (MIL-STD) Environmental Control Units (ECU)
- Ruggedized for military environments
- Increased reliability over current MIL-STD ECU
- Reduced power consumption resulting in overall fuel savings
- Reduced weight: 10-25 percent lighter than current MIL-STD ECU
- Fully operable up to 125 degrees Fahrenheit
- Uses R-410A refrigerant, a commercial industry standard
- Compliant with all environmental legislative requirements
- Soft start, limited inrush current (no voltage drop or breaker trip due to compressor start-up)
- Electromagnetic interference and nuclear, biological and chemical-protected interface
- Remote control capability with automatic safety controls
- Organically supportable

## PROGRAM STATUS

- **4QFY17:**
  - Milestone C, Low Rate Initial Production (LRIP) Decision
  - Awarded LRIP Contract

## PROJECTED ACTIVITIES

- **4QFY18-1QFY19:** First Article Testing and Initiate LRIP build
- **2QFY19:** Full Rate Production Decision/Full Materiel Release
- **3QFY19:** Initiate Army Fieldings

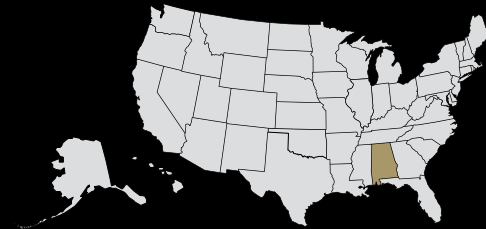
# IECU

## FOREIGN MILITARY SALES

None

## CONTRACTORS

9,000, 18,000, 36,000 Btuh IECU: TFAB Defense Systems (Madison, AL)



# Improved Ribbon Bridge (IRB)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation  
 Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation &  
 Risk Reduction  
 Engineering & Manufacturing  
 Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Improved Ribbon Bridge (IRB) is used to transport weapon systems, troops and supplies over water when permanent bridges are not available, and thereby supports the joint force commander's ability to employ and sustain forces worldwide.

The bridge system allows two-way traffic for High Mobility Multipurpose Wheeled Vehicle-width vehicles and increased Military Load Capacity at all water current speeds over those of the Standard Ribbon Bridge. It is usable on increased bank heights more than 2.2 meters and the improved folding and unfolding mechanism avoids cable breakage. Partially disassembled bays are C-130 transportable and externally transportable by CH-47 and CH-53 aircraft.

The IRB Float Ribbon Bridge System is issued to the Multi-Role Bridge Company (MRBC). The Army Modified Table of Organization and Equipment authorizes MRBC to consist of: 42 IRB bridge bays (30 interior bays and 12 ramp bays); 42 Bridge Adapter Pallets; 14 Bridge Erection Boats (BEB); 14 Improved Boat Cradles; and 56 Common Bridge Transporters (CBT). These assets collectively address Tactical Float Ribbon Bridge "wet-gap" bridging. All components are required to transport, launch, erect and retrieve up to 210 meters of floating bridge per MRBC. The IRB can be configured as either a continuous full-closure bridge or assembled and used for rafting operations.

## BENEFIT TO THE SOLDIER

IRB allows for crossings of faster water with higher banks in contingency operations abroad and disaster relief and recovery efforts at home. It enables Soldiers to cross rivers, lakes or other bodies of water in the absence of a means of crossing or in the event of an unreliable or damaged permanent bridge. The IRB provides commanders an important option to rapidly

close distances and move critical capabilities and supplies by enabling formations to reliably cross gaps of still or moving water with currents of up to 10 feet per second.

## SPECIFICATIONS

IRB Military Load Capacity:

- 105 wheeled or 85 tracked (normal)
- 110 wheeled or 90 tracked (caution crossing)

## PROGRAM STATUS

- **3QFY16:** Limited User Test
- **3QFY17:** Full Rate Production Decision

## PROJECTED ACTIVITIES

- **FY19-FY23:** Program in Sustainment



# IRB

## FOREIGN MILITARY SALES

None

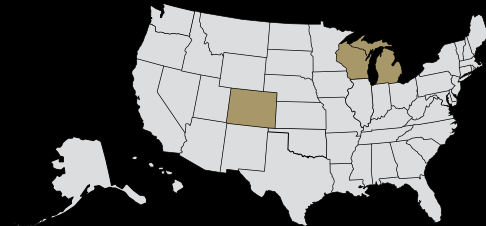
## CONTRACTORS

General Dynamics European Land Systems – Germany (Germany)

**Logistics support:** AM General (Livonia, MI)

**CBT:** Oshkosh (Oshkosh, WI)

**BEB:** Birdon Corporation (Denver, CO)



# Improved Target Acquisition System (ITAS)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Improved Target Acquisition System (ITAS) provides long-range sensor and anti-armor/precision assault fire capabilities, enabling the Soldier to shape the battlefield by detecting and engaging targets at long range with Tube-Launched, Optically Tracked, Wireless-Guided (TOW) Missiles; or directing the employment of other weapon systems to destroy those targets. ITAS is a multipurpose weapon system, used as a reconnaissance, surveillance and target acquisition sensor.

ITAS's second-generation forward-looking infrared sensors double the long-range surveillance of its predecessor, the M220 TOW system. ITAS offers improved hit probability with aided target tracking, improved missile flight software algorithms and an elevation brake to minimize launch transients. The system includes an integrated Far-Target Location (FTL) capability (day-and-night sight with laser rangefinder) via a position attitude determination subsystem, a fire-control subsystem, a lithium-ion battery power source and a modified traversing unit. Soldiers can also detect and engage long-range targets with TOW Missiles or, using the ITAS FTL capability, direct other fires to destroy them. The FTL capability consists of a position attitude determination subsystem that provides the gunner with their own Global Positioning System (GPS) location and a 10-digit grid location to their target through the use of differential GPS. The ITAS can fire all versions of the TOW Family of Missiles.

The ITAS Image Enhancement Modification Kit reduces operator workload by optimizing the image presented to the gunner through electronic processing. Electronic focus, image stabilization and other processing techniques ensure that the image presented is optimized for the environment without manual manipulation of the various adjustment settings. ITAS operates from the High Mobility Multipurpose Wheeled Vehicle,

the dismount tripod platform and Stryker anti-tank guided missile vehicles. ITAS is the Infantry's precision weapon of choice in combat engagements.

## BENEFIT TO THE SOLDIER

ITAS provides long-range anti-armor/precision assault fire capabilities to the Army's Infantry and Stryker Brigade Combat Teams as well as to the Marine Corps. ITAS is a major product upgrade that greatly reduces the number of components, minimizing logistics support and equipment requirements. Built-in diagnostics and improved interfaces enhance target engagement performance.

## SPECIFICATIONS

- Superior long-range surveillance (second-generation forward-looking infrared)
- Long-range, lethal, heavy, close combat and precision assault fires
- Laser rangefinder (10 km)/Aided Target Tracker
- Fires all versions of TOW Missile
- Automatic boresight capability
- FTL capability
- Embedded training and Multiple Integrated Laser Engagement System
- 16-hour Silent Watch capability

## PROGRAM STATUS

- **FY16:**
  - Completed Fielding of the ITAS v2.8 software concurrent with the Image Enhancement/Networked Lethality Fielding
  - Achieved a FY16 cost avoidance of \$29.3 million on Operation and Maintenance, Army appropriation via Better Buying Power initiatives

• **FY17:**

- Conducted total package fieldings of 58 ITAS to Active and Reserve Component units
- Trained 1,007 Soldiers in ITAS operator/crew New Equipment Training (NET), maintenance NET, Leadership Professional Development and collective skills

**PROJECTED ACTIVITIES**

- **FY19–FY22:** Modified ITAS (MITAS) Commonality Program funded to bring all Stryker Anti-Tank Guided Missile vehicles' MITAS to current M41A7 ITAS Configuration



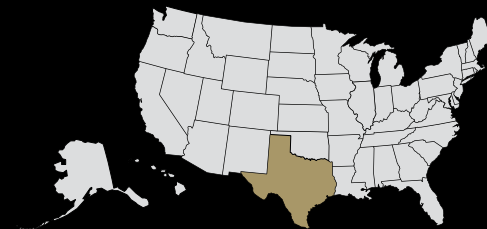
# ITAS

**FOREIGN MILITARY SALES**

Canada and the North Atlantic Treaty Organization Support and Procurement Agency

**CONTRACTORS**

Raytheon (McKinney, TX)



# Integrated Family of Test Equipment (IFTE)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Integrated Family of Test Equipment (IFTE) consists of at- and off- platform automatic test systems. They provide electronic fault isolation as well as diagnostic and repair capabilities at all levels of maintenance more cost-effectively than system-specific testers. IFTE, designed to support multiple weapon systems, includes:

- **Base Shop Test Facility – Version 3 (BSTF-V3):** The BSTF(V3) is an off-platform automatic test system that tests electronic Line Replaceable Units and Shop Replaceable Units of ground and aviation systems.
- **Electro-Optics Test Facility (EOTF):** The EOTF tests the full range of Army electro-optical systems: laser transmitters, receivers, spot trackers, forward-looking infrared systems and television systems. It is fully mobile with Versa Module Europa eXtensions for Instrumentation, touch-screen operator interface and an optical disk system for test program software and electronic manuals.
- **Maintenance Support Device – Version 3 (MSD-V3):** The MSD-V3, a lightweight, rugged, compact, man-portable, general purpose tester, that supports more than 50 weapon systems and is used by more than 30 military occupational specialties. It verifies the operational status of aviation, automotive, watercraft, electronic and missile weapon systems, and isolates faulty components for immediate repair or replacement. MSD-V3 hosts Interactive Electronic Technical Manuals, Aircraft Notebook software, and the Global Combat Support System–Army software enabling information entry into the logistics enterprise. It is used as a software uploader and verifier to provide or restore mission software to weapon systems, and is capable of supporting condition-based maintenance data collection and reporting.

- **Next Generation Automatic Test System (NGATS):** The NGATS is the follow-on reconfigurable, rapidly deployable, expeditionary interoperable tester and screener that supports joint operations by reducing the logistics footprint. It replaces and consolidates obsolete, unsupported test equipment in the Army's inventory.

## BENEFIT TO THE SOLDIER

MSD-V3 provides an environmentally hardened at-platform tester capable of supporting multiple Army weapon systems and reduces the logistics footprint. NGATS provides the warfighter with off-platform automated test equipment that is significantly more reliable, offers increased mobility and provides substantially more capability than the obsolete legacy systems it replaces.

## SPECIFICATIONS

- **MSD-V3:**
  - Dimensions: 11 inches wide, 10 inches deep and 4 inches high
  - Weight: 13 pounds (core and dock plus two batteries)
- **NGATS:**
  - Housed in a 20-foot International Organization for Standardization (ISO) shelter that uses a Heavy Expanded Mobility Tactical Truck as the prime mover, as well as a 20-foot ISO shelter for storage of the accompanying Test Program Sets

## PROGRAM STATUS

- **2QFY16:** NGATS Shelter Contract Award
- **2QFY17:** NGATS Operational Assessment
- **1QFY18-3QFY18:** NGATS Transportability Testing
- **Current:** MSD-V3 Fielding; BSTF-V3/EOTF



## PROJECTED ACTIVITIES

- **4QFY18:** MSD-V4 Light and MSD-V4 Rugged contract awards (follow-on to MSD-V3)
- **1QFY19:**
  - NGATS Type Classification-Standard
  - NGATS First Unit Equipped



## IFTE

### FOREIGN MILITARY SALES

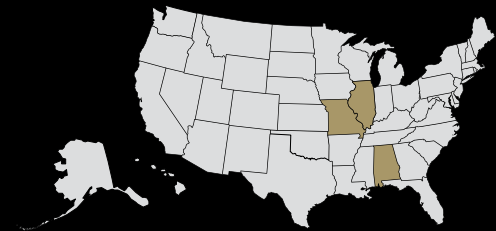
**MSD:** Afghanistan, Australia, Bahrain, Chile, Djibouti, Egypt, Ethiopia, Germany, Israel, Iraq, Jordan, Korea, Kuwait, Lithuania, Macedonia, Morocco, Netherlands, Oman, Poland, Portugal, Saudi Arabia, Taiwan, Turkey, United Arab Emirates, Uzbekistan and Yemen

### CONTRACTORS

**BSTF-V3 and EOTF:** Northrop Grumman (Rolling Meadows, IL)

**MSD-V3:** VT Miltope (Hope Hull, AL)

**NGATS:** Boeing (St. Louis, MO)



# Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation & Risk Reduction  
Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT) provides proficiency training for military intelligence analysts and system operators to acquire and exploit intelligence data in a “train as we fight” simulated environment. IEWTPT fills critical intelligence Soldier training gaps at home stations for Human Intelligence (HUMINT), Signals Intelligence (SIGINT), Geospatial Intelligence and All Source Intelligence. It directly supports individual, crew and collective training in support of mission command and unified land operations.

The Technical Control Cell (TCC) is the cornerstone training device of the IEWTPT and is the network interface to the exercise training environment. The TCC Lower Enclave (LE) operates up to the secret classification level and performs many functions to support exercise design, setup and execution. The TCC Upper Enclave operates at the Top Secret/Sensitive Compartmented Information classification level and drives all SIGINT training.

The HUMINT Control Cell (HCC) provides sustainment training for HUMINT and Counter Intelligence collectors in an immersive and virtual training environment.

## BENEFIT TO THE SOLDIER

Intelligence is an essential enabler of ground combat readiness. IEWTPT is the Army’s only system that supports the sustainment of mission-essential and highly perishable skills of intelligence collectors and analysts. In addition to training individual Soldiers’ measure-of-suitability skills, IEWTPT facilitates collective training across the various intelligence disciplines.

## SPECIFICATIONS

### IEWTPT system is comprised of:

- TCC Lower and Upper enclaves: high-powered server stack that includes exercise scenario development tools, management tools and After Action Review capability
- HCC: 3 laptop computers, 40-inch visual display, headset and speakers

## PROGRAM STATUS

- **2QFY17:** Contract Award
- **3QFY17:**
  - New HCC Authorization to Operate (ATO) granted for three years
  - Prophet system simulator delivery and ATO granted to Goodfellow Air Force Base, Texas, for institutional SIGINT collection training
  - Upgraded TCC LE and ATO granted for three years
- **2QFY18:** TCC Fielding to Indiana National Guard (Indianapolis, Indiana)
- **3QFY18:** TCC Fielding to Northeast Army Reserve Intelligence Support Center New Jersey
- **4QFY18:** TCC Hardware Refresh

## PROJECTED ACTIVITIES

- **FY19:** Continue TCC Hardware Refresh/2 TCC Fielding events
- **FY20:** Complete fielding/Full Operational Capability
- **FY21:** Transition planning for Increment 2
- **FY22:** Increment 2 start on/about 2QFY22

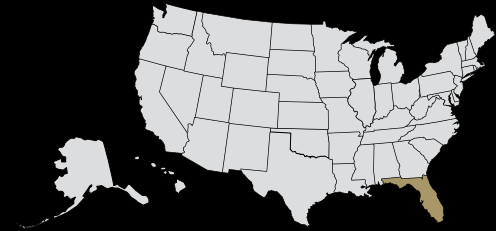
# IEWTPT

## FOREIGN MILITARY SALES

None

## CONTRACTORS

General Dynamics Mission Systems (Orlando, FL)



# Joint Biological Tactical Detection System (JBTDS)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Biological Tactical Detection System (JBTDS) will be a lightweight, man-portable, battery-operated system that detects the presence of, collects a sample of, and presumptively identifies Biological Warfare Agents (BWA) to provide near real-time detection of biological attacks and hazards in the area of operation. It will have a local alarm and be networked to provide cooperative capability with reduced probability of false alarms. JBTDS will be employed organically at the battalion and lower levels by non-chemical, biological, radiological and nuclear personnel in tactical environments across multiple operational locations (e.g., forward operating bases, operationally engaged units, amphibious landing sites, air base operations, etc.).

JBTDS will ultimately support force protection and maximize combat effectiveness by enhancing medical response decision-making. When networked, JBTDS will augment existing biological detection systems to provide a theaterwide, seamless array capability of detection and warning.

## BENEFIT TO THE SOLDIER

JBTDS provides detection, collection and identification of BWA at very low concentrations.

## SPECIFICATIONS

- TBD

## PROGRAM STATUS

- **2QFY16:** Critical Design Review
- **2QFY16-4QFY17:**
  - Developmental Testing
  - Conduct Engineering and Manufacturing Development effort
- **4QFY17:** Operational Assessment (OA)
- **1QFY18:** Milestone C Decision

## PROJECTED ACTIVITIES

- **FY19-FY20:** Assay shelf life testing, military standard test and Post Corrective Action Period False Alarm
- **3QFY19:** Log Demo
- **1QFY20:** OA Milestone Post OA

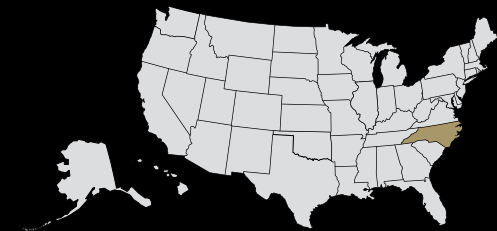
# JBTDS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Chemring Sensors & Electronic Systems (Charlotte, NC)



JBTDS Base Station



JBTDS Identifier



JBTDS Detector-Collector

# Joint Chemical Agent Detector (JCAD) — M4A1

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
**Production & Deployment**  
Operations & Support

## DESCRIPTION

The Joint Chemical Agent Detector (JCAD) is a pocket-size, rugged handheld detector that automatically detects, identifies and alarms to chemical warfare agents and toxic industrial chemical vapors.

The services can use the system on mobile platforms, at fixed sites and on individuals designated to operate in a chemical threat area. Additionally, the system can operate in a general chemical warfare environment as well as undergo conventional decontamination procedures by the warfighter.

JCAD M4A1, which commenced production in Fiscal Year 2011, will reduce operation and sustainment costs, has an improved user interface and is net ready.

JCAD replaces the Automatic Chemical Agent Detector and Alarm, or M22, M90 and M8A1 systems. It may also replace the Chemical Agent Monitor and Improved Chemical Agent Monitor.

## BENEFIT TO THE SOLDIER

JCAD M4A1 protects U.S. forces by detecting, identifying, alerting and reporting the presence of chemical warfare agents and toxic industrial chemical vapor.

## SPECIFICATIONS

- Instant feedback of hazard (mask only or full Mission-Oriented Protective Posture)
- Real-time detection of nerve, blister and blood agents
- Stores up to 72 hours of detection data
- The M4A1 will be net-ready through implementation of the common chemical, biological, radiological and nuclear standard interface

## PROGRAM STATUS

- **FY16-FY18:** Production and Deployment

## PROJECTED ACTIVITIES

- **FY19-FY23:** Production and Deployment

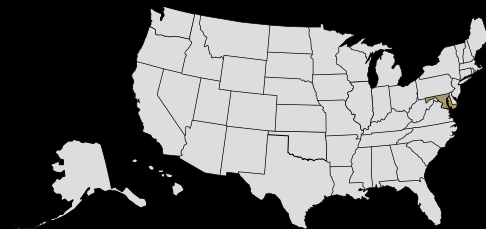
## JCAD — M4A1

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Smiths Detection (Edgewood, MD)



# Joint Effects Model (JEM) 1 and 2

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Joint Effects Model (JEM) 1 and 2 are web-based software applications that supply the Department of Defense (DOD) with the one and only accredited tool to effectively model and simulate the effects of Chemical, Biological, Radiological and Nuclear (CBRN) weapon strikes and incidents. JEM can provide warfighters with the ability to accurately model and predict the time-phased impact of CBRN and Toxic Industrial Chemical/Material (TIC/TIM) events and effects. JEM supports planning to mitigate the effects of weapons of mass destruction and to provide rapid estimates of hazards and effects integrated into the Common Operational Picture (COP).

## BENEFIT TO THE SOLDIER

JEM provides warfighters with the only DOD-accredited and operationally tested modeling capability to predict high-fidelity downwind hazard areas and effects associated with the release of CBRN and Toxic Industrial Hazards (TIH) into the environment; incorporate the impacts of weather, terrain and material interactions into the downwind prediction; provide enhanced situational awareness of the battlespace; and deliver near real-time hazard information to influence and minimize CBRN and TIH effects on current operations, and to save lives.

## SPECIFICATIONS

- Models CBRN hazards and resulting human physiological effects for chemical and biological weapon and facility strikes, nuclear weapon incidents and detonations, radiological weapon detonations, chemical weapon storage incidents, high-altitude releases and TIC/TIM releases
- Provides the ability to display to the COP and operates in an integrated fashion with operational and tactical command and control (C2) systems

- Interfaces and communicates with the Joint Warning and Reporting Network to calculate and provide the ATP-45 “enhanced” downwind hazard prediction
- Interfaces and communicates with associated weather systems, intelligence systems and various databases
- Supports multiple deployment strategies that operate on both UNIX and Windows systems, and is integrated into C2 systems across DOD
- Available as stand-alone, networked, distributed or web access
- Operationally supported, 24/7 reachback (call center and web)
- Provides warfighters the best and most mature technology available to address a wide spectrum of threats

## PROGRAM STATUS

- **FY16-FY18:** JEM 1 in Sustainment
- **4QFY16:** Limited Deployment to Air Force, Army, Navy and National Guard Bureau (NGB) CBRN Response Enterprise
- **3QFY17:** Requirements Definition Package 2, Limited Deployment on milCloud
- **1QFY18:** Fielding decision for Army Capability Set (CS) 11-12 Battle Command Common Server Host Systems Acquisition Decision Memorandum

## PROJECTED ACTIVITIES

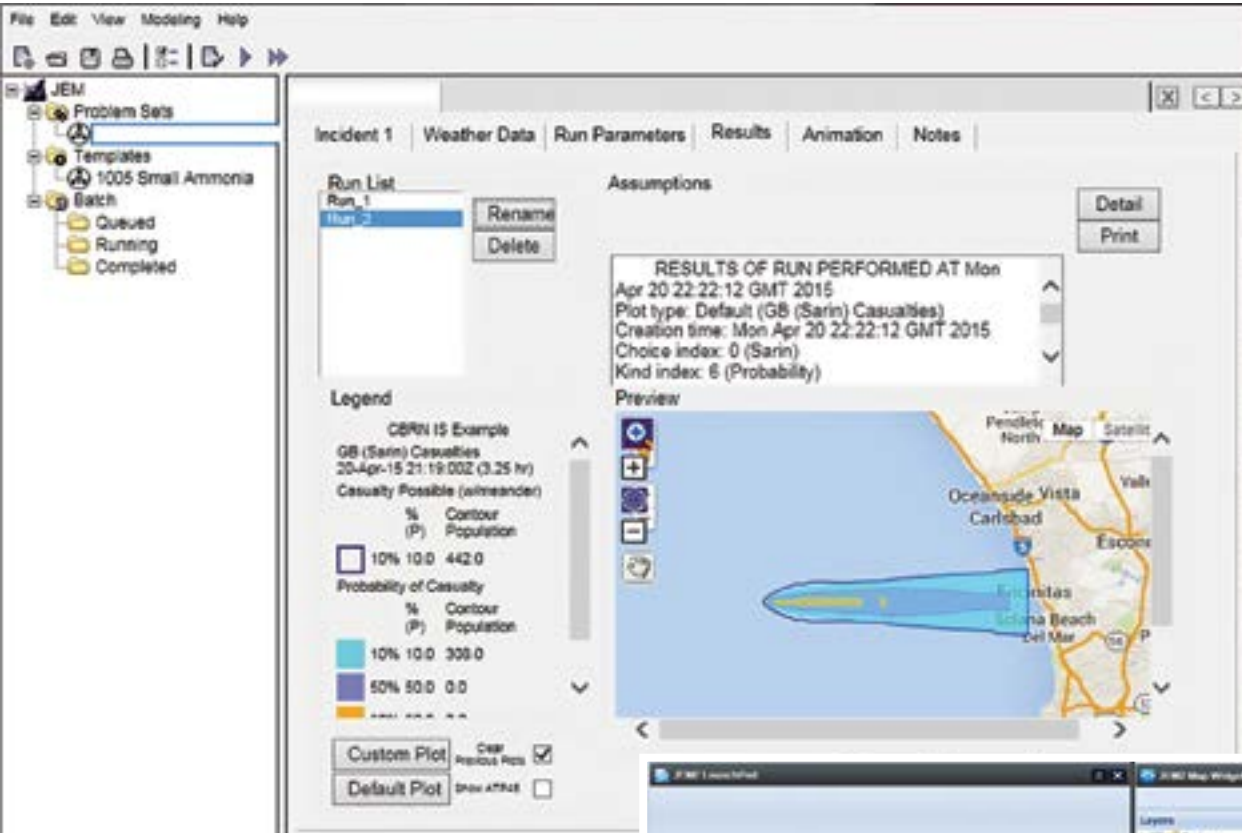
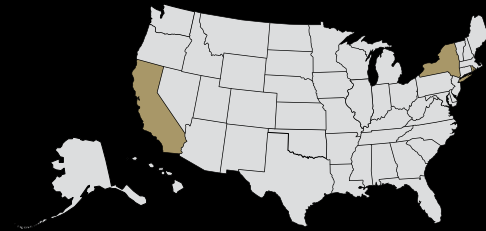
- **FY19-FY23:**
  - JEM 1 sunsets in FY19, replaced by JEM 2
  - Continued Development, Integration and Deployment of Capability
  - Continued Army Deployment on CS 11-12
  - Fielding to U.S. Air Force and NGB Contingency Response Elements on milCloud
  - Continued support for Limited Deployment on milCloud



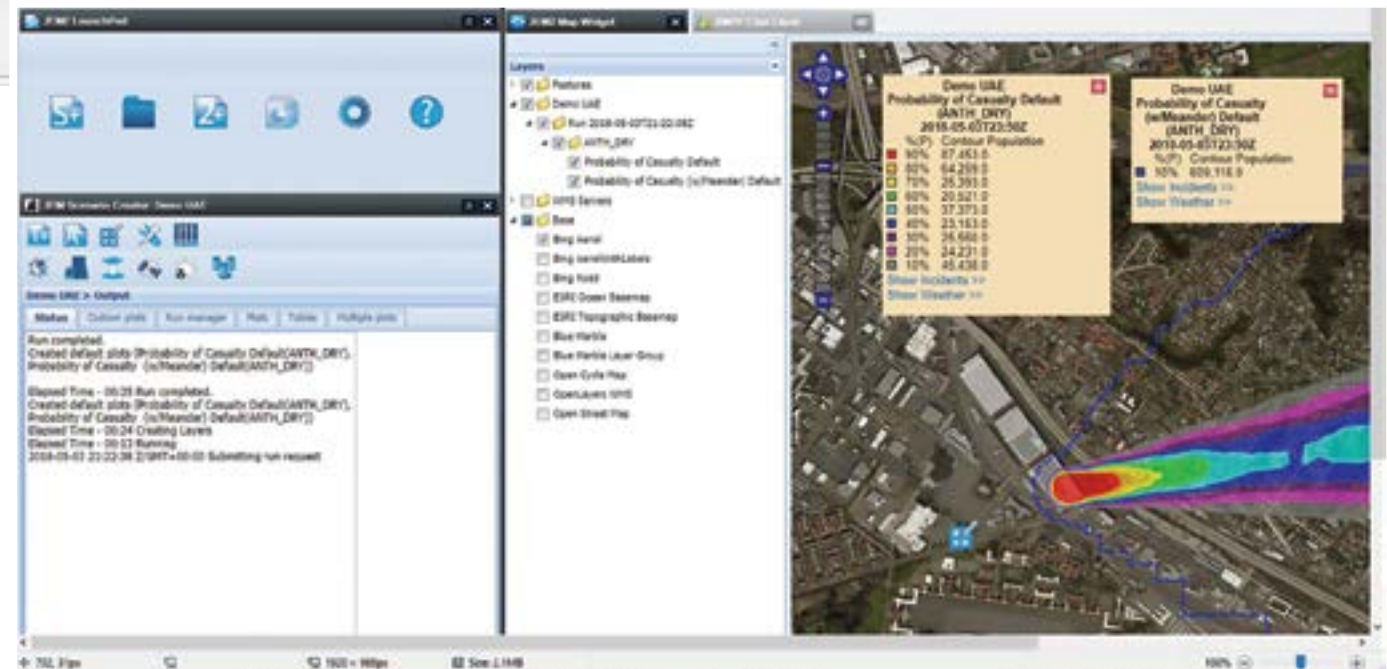
# JEM 1 and 2

**FOREIGN MILITARY SALES**  
Canada and Spain

**CONTRACTORS**  
General Dynamics Information Technology  
(Middletown, RI; Buffalo, NY; and San Diego, CA)



JEM 1



JEM 2

# Joint Personal Dosimeter-Individual (JPD-IND)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Joint Personal Dosimeter-Individual (JPD-IND) provides a sensor to record and retrieve a service member's radiation exposure from occupational to tactical levels. It provides a joint solution to increase capability and reduce life cycle costs, as well as addresses Operation Tomodachi lessons learned for common, interoperable equipment with adequate sensitivity and common units of measure.

## BENEFIT TO THE SOLDIER

JPD-IND will provide a sensor to record and retrieve the warfighter's radiation exposure from occupational to tactical levels. JPD-IND will be a National Voluntary Laboratory Accreditation Program that will allow dose of record for warfighter's medical records to be obtained. The acquisition strategy leverages the Navy's battlefield dosimeter to address interoperability lessons learned from Operation Tomadachi.

## SPECIFICATIONS

- Weight: Two ounces with batteries
- Power: Lithium coin cell, Commercial Off-The-Shelf model CR2450N and CR1025N4QFY19
- Accurate and reliable
- Direct Ion Storage technology
- Self-reading for effective decision-making
- Hands-free operation
- Wrist-worn or clipped to lanyard or garment
- Field-replaceable batteries

## PROGRAM STATUS

- **Mid-FY16:** Milestone C
- **Current:** Post-Milestone C
- **1QFY18:** Production Qualification Testing
- **4QFY18:** Full Rate Production Decision

## PROJECTED ACTIVITIES

- **4QFY19:** Follow-on Operational Test and Evaluation
- **4QFY20:** Initial Operational Capability



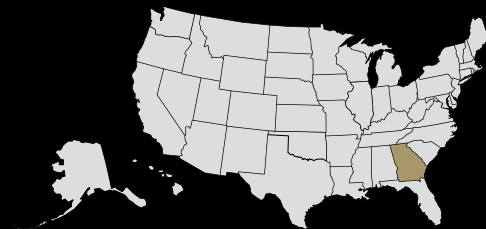
## JPD-IND

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Mirion Technologies (Smyrna, GA)



# Joint Precision Airdrop System (JPADS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Precision Airdrop System (JPADS) provides rapid, precise, high-altitude delivery capabilities that do not rely on ground transportation. The system ensures accurate and timely delivery in support of operational missions, while providing aircraft with increased survivability.

JPADS integrates a parachute decelerator, an autonomous guidance unit and a load container or pallet to create a system that can accurately deliver critical supplies with great precision along a predetermined glide and flight path. The system consists of two weight classes: 2,000 pounds (2K) and 10,000 pounds (10K). The guidance system uses military Global Positioning System (GPS) data for precise navigation and interfaces with a wirelessly updatable mission planning module onboard the aircraft to receive real-time weather data and compute multiple aerial release points.

JPADS is designed for aircraft to drop cargo from altitudes of up to 24,500 feet mean sea level. It releases cargo from a minimum off-set of eight km from the intended point of impact, with an objective capability of 25 km off-set. This off-set allows aircraft to stay out of range of many anti-aircraft systems. It also enables aircraft to drop systems from a single aerial release point and deliver them to multiple or single locations, thus reducing aircraft exposure time. Once on the ground, the precise placement of the loads greatly reduces the time needed to recover the load as well as minimize exposure to ground forces.

## BENEFIT TO THE SOLDIER

JPADS increases aircraft and payload survivability and enables delivery of multiple loads to single or multiple drop zones in a single aircraft pass with accuracy better than 150 meters with 80 percent confidence.

## SPECIFICATIONS

### JPADS 2K includes:

- 1,025-square-foot ram air parafoil with a glide ratio of three to one coupled with a military GPS-based Autonomous Guidance Unit (AGU)
- Specially designed suspension sling is used to attach the AGU to the Container Delivery Systems payload
- Onboard guidance, navigation and control software in the AGU autonomously steers the parafoil to the designated impact point

### JPADS 10K includes:

- 3,500-square-foot ram air parafoil with a glide ratio of at least three to one coupled with a military GPS-based AGU
- Load is configured on a combat-expendable, 463L or Type V airdrop platform for gravity airdrop

## PROGRAM STATUS

- **FY18:**
  - JPADS 2K transferred funding to Integrated Logistics Support Center (ILSC) Sustainment Contract
  - JPADS 10K Fielding and Delivery

## PROJECTED ACTIVITIES

- **FY19:**
  - JPADS 2K ILSC Sustainment and Modernization via depot
  - JPADS 2K Block 1 Engineering Change Proposal (ECP)
  - JPADS 10K total package Fielding and Delivery continues
  - JPADS 10K Block 1 ECP

# JPADS

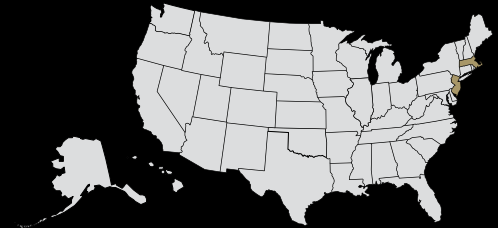
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Airborne Systems North America (Pennsauken, NJ)

Draper Laboratory, Inc. (Cambridge, MA)



# Joint Service Aircrew Mask - Rotary Wing (JSAM – RW) MPU-5

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Service Aircrew Mask - Rotary Wing (JSAM – RW) is one of five variants in the JSAM Family of Systems that provides individual respiratory, eye and head protection against Chemical and Biological (CB) warfare agents and radiological particulates for aircrews of all rotary wing aircraft except Apache. JSAM RW decreases thermal burden as compared to legacy systems. It also provides CB protection during the full spectrum of rotary wing operations including flight, immediate maintenance operations, extended flight-related ground duties, and ground escape, as well as evasion operations.

## BENEFIT TO THE SOLDIER

JSAM RW provides the warfighter with an above-the-neck CB protective respirator for general purpose rotary-wing aircrews. The mask is capable of being donned and doffed while in flight, provides greater comfort, less physiological burden and greater flexibility of use with man-mounted systems.

## SPECIFICATIONS

- Protection against CB warfare agents and radiological particulate
- Compatible with appropriate life-support equipment across various aircraft platforms
- No aircraft modifications required

## PROGRAM STATUS

- **1QFY17:** Achieved Full Rate Production (FRP) for U.S. Army and U.S. Air Force (USAF)
- **4QFY17:** Achieved JSAM RW USAF Initial Operational Capability (IOC)
- **3QFY18:** Achieved FRP for U.S. Navy and U.S. Marine Corps
- **2QFY17-3QFY18:** Fielded 527 of 1,114 masks to the USAF
- **4QFY18:**
  - Anticipate achievement of JSAM RW USAF Full Operational Capability (FOC)
  - Anticipate achievement of JSAM RW IOC for Army, Navy and Marine Corps

## PROJECTED ACTIVITIES

- **FY22:** Anticipate achievement of FOC for Navy and Marine Corps
- **FY23:** Anticipate achievement of FOC for Army



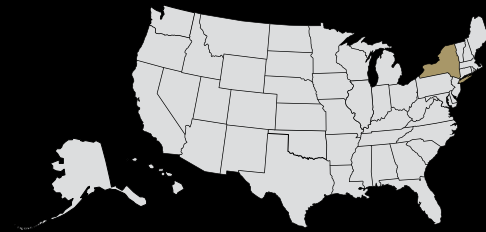
## JSAM — RW MPU-5

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Avox Systems (Lancaster, NY)



# Joint Service Equipment Wipe (JSEW)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation  
 Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation &  
 Risk Reduction  
 Engineering & Manufacturing  
 Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

Joint Service Equipment Wipe (JSEW) provides immediate/operational decontamination capabilities for sensitive and nonsensitive equipment exposed to traditional and non-traditional chemical contamination. JSEW will be the first decontamination capability available to warfighters that is nondestructive to sensitive equipment. JSEW will be employed as a means to decontaminate hazards posing threats to military operations, including peacekeeping, stability and support or consequence management operations. It will be applied directly to the contaminated surface and is capable of removing gross contamination and reducing contact hazard within five minutes of application.

## BENEFIT TO THE SOLDIER

JSEW is sized for individuals to carry in the pocket of their overgarments. It is durable and allows for extended carry by individual users.

## SPECIFICATIONS

- Decontaminate chemical warfare and nontraditional agents of operational significance
- Nondestructive to both sensitive and nonsensitive equipment
- Allows for decontamination of 1 gram per square meter of sensitive and nonsensitive equipment with a single kit (kit contains five individually packaged wipes)

## PROGRAM STATUS

- **1QFY17:** Achieved Milestone C/Low Rate Initial Production
- **1QFY18:** Achieved Full Rate Production
- **3QFY18:** Anticipate achievement of Initial Operational Capability

## PROJECTED ACTIVITIES

- **2QFY20:** Anticipate achievement of Full Operational Capability





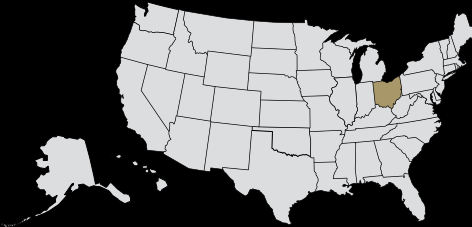
# JSEW

## FOREIGN MILITARY SALES

None

## CONTRACTORS

STERIS (Mentor, OH)



# Joint Service General Purpose Mask (JSGPM) — M-50/M-51

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Joint Service General Purpose Mask (JSGPM) is a family of above-the-neck, Chemical and Biological (CB) respirators that protects against battlefield concentrations of CB agents, toxins, toxic industrial materials and radioactive particulate matter. The family consists of the M50 (ground use), M51 (ground vehicle use), M53 (Special Forces) and M53A1 (domestic and military use). The M50/M51 masks replace the M40 and M42, MCU2/P series masks and the M45 in the Land Warrior Program. The M53A1 can be used in either Air-Purifying Respirator, Powered Air Purifying Respirator, or Self-Contained Breathing Apparatus mode, and is the first mask to be approved for both domestic response (National Institute for Occupational Safety and Health certified) and military missions.

## BENEFIT TO THE SOLDIER

JSGPM provides the warfighter with face, eye and respiratory protection from battlefield concentrations of CB agents, toxins, toxic industrial materials and radiological particulate matter.

## SPECIFICATIONS

- Overall field-of-view is greater than or equal to 80 percent
- Improved compatibility with current and emerging CB garments
- Improvements over the MCU2/P, M40/M42 and M45:
  - Reduced weight and bulk
  - Increased drinking capability
  - Improved mask carrier system
  - Filter service life indicator capability
  - Flame resistant hood for combat vehicle version
  - Improved reliability and improved comfort
- Filter change-out in a contaminated environment (self-sealing valve)
- More than 24 hours of above-the-neck protection from CB agents and radioactive particles

- More than 50 percent improvement in breathing resistance compared to legacy masks

## PROGRAM STATUS

- **FY16-FY18:**
  - Ongoing Production of M50/M51 to support Army Full Operational Capability (FOC)
  - Ongoing Fielding of M50/M51 masks to Army units

## PROJECTED ACTIVITIES

- **2QFY19:** Anticipate achievement of M53A1 Initial Operational Capability
- **4QFY19:** Anticipate achievement of M50/M51 FOC
- **4QFY22:** Anticipate achievement of M53A1 FOC

## JSGPM — M-50/M-51

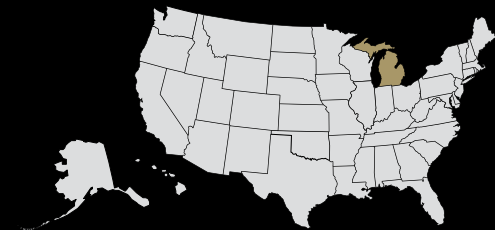
### FOREIGN MILITARY SALES

M50: Iraq

M51: Australia

### CONTRACTORS

Avon Protection Systems (Cadillac, MI)



# Joint Tactical Ground Station (JTAGS)

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Joint Tactical Ground Stations (JTAGS) are forward-deployed, echelon-above-corps, space ground systems that receive, process and disseminate direct down-linked infrared data from overhead sensors. They provide commanders with real-time warning, alerting and cueing information on ballistic missile launches. Ongoing product improvements integrate JTAGS with the next-generation Space Based Infrared System (SBIRS) satellites. Four JTAGS are deployed worldwide as part of the U.S. Strategic Command's Theater Event System. U.S. Army Space and Missile Defense Command Soldiers operate JTAGS, providing 24/7 support to theater operations.

## BENEFIT TO THE SOLDIER

JTAGS processes satellite data and disseminates ballistic missile warning or special event messages to warfighters in support of regional combatant commanders over multiple theater communication systems.

## SPECIFICATIONS

- SBIRS sensors will significantly improve theater missile warning parameters
- Expected improvements:
  - Higher quality cueing of active defense systems
  - Decreased missile launch search area
  - Faster initial report times
  - Improved impact ellipse prediction

## PROGRAM STATUS

- **FY16:** Development and testing of the JTAGS Block II, Phase 1 system
- **FY17:**
  - Additional developmental and operational testing of the JTAGS Block II, Phase 1 system
  - Successful completion of a Limited User Test

- Receipt of a Block II Risk Management Framework Authorization to operate
- Delivery of the JTAGS Block II, Phase 1 training system to U.S. Army Space and Missile Defense Command
- **FY18:**
  - Fielding and delivering Operational Capability of the JTAGS Block II, Phase 1 system at Outside of the Continental United States (OCONUS) locations to JTAGS detachments
  - Conduct developmental activities for JTAGS Block II, Phase 2 for improved performance

## PROJECTED ACTIVITIES

- **FY19:**
  - Continued Fielding of JTAGS Block II, Phase 1 to OCONUS locations
  - Continue development activities for JTAGS Block II, Phase 2 capabilities
  - Conduct Development Test to measure performance improvements
- **FY20:** Conduct limited Operational Test for JTAGS Block II, Phase 2
- **FY21:** Begin to Field JTAGS Block II, Phase 2 to OCONUS units

# JTAGS

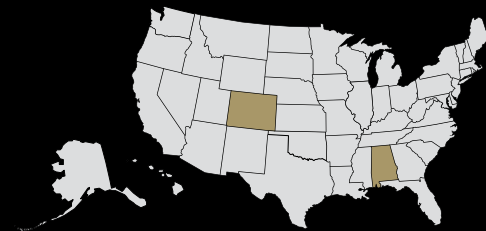
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Northrop Grumman (Colorado Springs, CO)

Sigmatech, Inc. (Huntsville, AL)



# Joint Warning and Reporting Network (JWARN) 2

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Joint Warning and Reporting Network (JWARN) 2 provides joint forces with a capability to report, analyze and disseminate detection, identification, location and warning information to accelerate the warfighter's response to a Chemical, Biological, Radiological and Nuclear (CBRN) attack. JWARN 2 is a computer-based application integrating CBRN data and facilitates sensor information into joint and service command and control systems for battlespace situational awareness. JWARN replaces the manual processes of incident reporting, hazard plot generation and warning affected forces.

## BENEFIT TO THE SOLDIER

JWARN reduces the time from incident observation to warning to less than two minutes, enhances situational awareness throughout the area of operations and supports warfighter battle management tasks.

## SPECIFICATIONS

- Incorporates sensor alert information and CBRN observation reports from the field
- Makes a plot of the hazard area
- Provides overlays for display on the Common Operational Picture (COP)
- Generates warning message to units

## PROGRAM STATUS

- **3QFY17:**
  - Full Deployment Decision of JWARN 2 to the Army Battle Command and Common Server Host Systems
  - Limited Deployment Decision of JWARN 2 on the CBRN Information System (IS) milCloud environment
- **4QFY17:** JWARN 2 Air Force Fielding Decision for CBRN-IS and stand-alone capabilities

## PROJECTED ACTIVITIES

- **4QFY19:** JWARN 2 Navy Operational Test (OT) on Consolidated Afloat Networks and Enterprise Services (CANES) host system
- **1QFY19:** JWARN 2 Marine Corps OT on Joint Tactical COP Workstation host system
- **FY20:** JWARN 2 Navy and Marine Corps Fielding Decisions

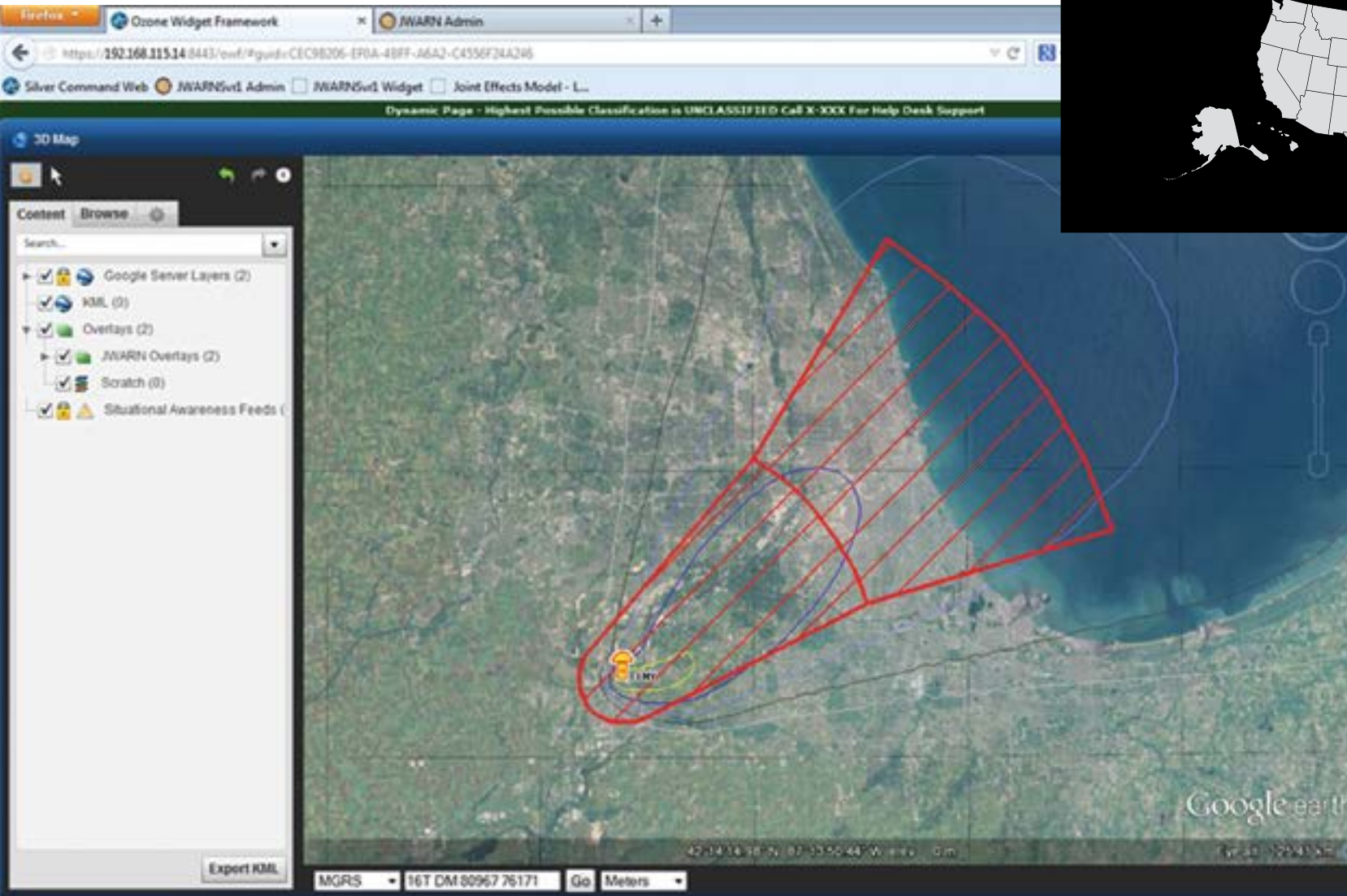
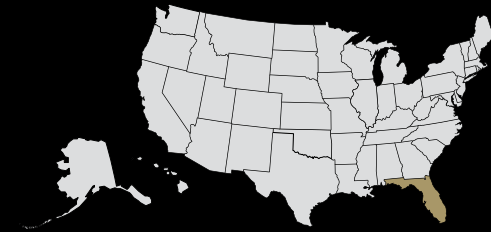
# JWARN 2

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Northrop Grumman Information Technology  
(Orlando, FL)



# Laser Target Locator Module 2 (LTLM 2)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Laser Target Locator Module 2 (LTLM 2) is a handheld, passive sensor that provides all weather and battlefield conditions target acquisition. The LTLM 2 has integrated an eye safe laser range finder, an infrared camera, a low light camera, a digital magnetic compass, a Selective Availability Anti-Spoof Module compliant Global Positioning System and direct view optics with an etched reticle that is similar in size to the standard M22 binoculars.

## BENEFIT TO THE SOLDIER

The LTLM 2 addresses a high-priority capability gap for a lightweight, target locator that allows the dismounted Soldier to conduct urban operations requiring quick movement and obtaining points of advantage. Once the position of advantage is achieved, they must, in the stealthiest mode possible, under all battlefield and climatic conditions, quickly and accurately ascertain exact positions of interest and provide as accurate of a location description as possible for organic and supporting forces to respond as required.

## SPECIFICATIONS

- **Handheld weight:** LTLM 2 handheld weight is 3.25 pounds (6 pounds threshold and 3.5 pounds objective)
- **System weight:** 8 pounds (10 pounds threshold and 7 pounds objective)
- **Target Location Error:** Less than or equal to 45 meters at 5 km (threshold) and less than or equal to 45 meters at 5 km (objective)

## PROGRAM STATUS

- **4QFY16:** Production Contract Award
- **2QFY18:** Initial Developmental Test and Evaluation

## PROJECTED ACTIVITIES

- **4QFY18:**
  - Type Classification-Standard
  - Materiel Release
- **1QFY19:** First Unit Equipped





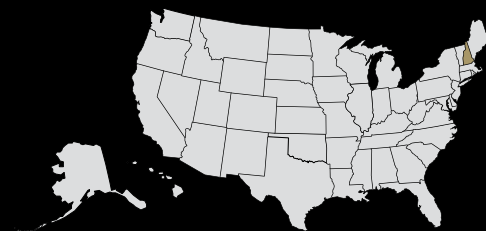
## LTLM 2

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Optics 1 (Bedford, NH)



# Light Capability Rough Terrain Forklift (LCRTF)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The Light Capability Rough Terrain Forklift (LCRTF) is a C-130 and CH-47 sling load transportable, 5,000-pound capacity, variable-reach, rough-terrain forklift with fork tine oscillation and side-shift cab controls. LCRTF enters, loads and unloads Army International Organization for Standardization (ISO) containers. The extendable boom fork carriage removes pallets from ISO containers on trucks. The LCRTF is a significant improvement over the existing 4,000-pound capacity fleet because of its enclosed air conditioned cab, moveable tines and improved helicopter lift.

## BENEFIT TO THE SOLDIER

LCRTF provides a safe and efficient way to load and unload Army cargo in unimproved and improved areas. The new LCRTF is more reliable, available and maintainable than the system it replaces.

## SPECIFICATIONS

- 5,000-pound lift capacity
- 36-inch fording
- 20-mph traverse speed

## PROGRAM STATUS

- **FY17:** Contract Award
- **FY18:** Complete First Article Testing

## PROJECTED ACTIVITIES

- **FY19:** Complete Technical Manual development and start production
- **FY20-FY23:** In FY20 start Fielding and continue Production through FY23

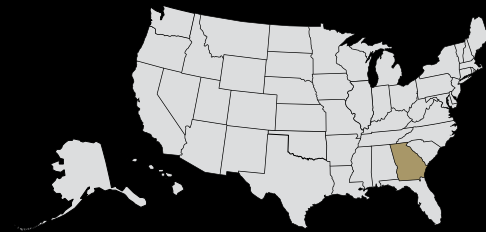
# LCRTF

## FOREIGN MILITARY SALES

None

## CONTRACTORS

JCB (Pooler, GA)



# Lightweight Counter Mortar Radar (LCMR) — AN/TPQ-50

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The AN/TPQ-50 Lightweight Counter Mortar Radar (LCMR) is a highly mobile counterfire target acquisition radar organic to Brigade Combat Teams, field artillery brigades and division artilleries. The system provides 360 azimuth coverage between the ranges of .5 to 10 km while automatically detecting, classifying, tracking and locating points of origin of projectiles fired from mortar, artillery and rocket systems. The system is fielded in the vehicle-mounted configuration but can be operated in the tripod-mounted configuration.

## BENEFIT TO THE SOLDIER

The Q-50 can quickly detect, track, classify and accurately determine the point of origin of enemy indirect fires and provide projectile impact locations with sufficient accuracy to warn Soldiers and provide point of origin information for engagement. The Q-50 is networked with existing counterfire systems to provide the maneuver commander increased counterfire radar flexibility. It can be assembled and disassembled quickly by two Soldiers.

## SPECIFICATIONS

- 360-degree battlefield surveillance coverage:
  - Mortar: .5 km to 10 km
  - Artillery: 1 km to 10 km
  - Rockets: 1 km to 10 km
- Probability of location greater than or equal to 85 percent
- Can be operated in a stand-alone (6 two-person lift transit cases) or vehicle-mounted configuration (M1152A1 High Mobility Multipurpose Wheeled Vehicle with B2 Armor Kit)
- Crew Size: Two Soldiers; Military Occupational Specialty: 13R
- Emplacement: 20 minutes
- Displacement: 10 minutes
- Air, rail or ship transportable

- Rapidly deployable to, and integrated into, the tactical battlefield with heavy, medium and light forces
- Mobile, maneuverable, fully supportable, easily maintained

## PROGRAM STATUS

- **FY16:** Procurement of 109 systems
- **1QFY18:** Army Acquisition Objective Procurement complete
- **3QFY18:** Organic depot capability established; Tobyhanna Army Depot, Pennsylvania

## PROJECTED ACTIVITIES

- **1QFY19-3QFY22:** Software version 2.1.1 Fielding
- **1QFY20:**
  - AN/TPQ-50 Fielding complete
  - Transition to Sustainment; U.S. Army Communications-Electronics Command, Maryland

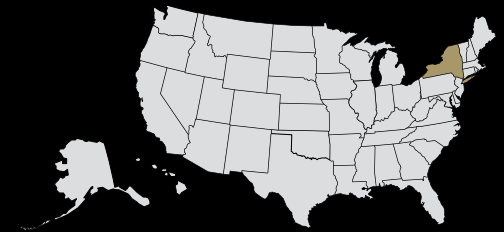
# LCMR — AN/TPQ-50

## FOREIGN MILITARY SALES

None

## CONTRACTORS

SRCTec, LLC (North Syracuse, NY)



# Line Haul Tractor

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The M915A3 and M915A5 Line Haul Tractor Trucks serve as the prime movers for semi-trailers with a Gross Combined Vehicle Weight up to 105,000 pounds and 120,000 pounds respectively, with semi-trailers weighing up to 86,000 pounds. They are used to transport bulk cargo, containers and bulk liquids (petroleum/water) from ports to forward areas. The predecessor Line Haul system is the M915A3, which was fielded in unarmored and armored (Generation III Add-on Armor) configurations. Block upgrades, to include up armor, were made to the M915A3 through Engineering Change Proposals to meet the requirement for the Long Term Armor Strategy A-cab and B-kit armor protection, without reducing mission capability, and which became the M915A5.

The M915A3 and M915A5 are a critical part of the theater distribution system. The M915A3 and M915A5 support missions through the full spectrum of military operations from peacetime to major combat operations. The Line Haul tractors operate primarily in the theater area, but can deliver cargo as far forward as the road network allows. They can operate worldwide principally on primary and secondary roads, and off-road when necessary or feasible. Vehicle operations include around-the-clock, all weather use in hot, basic and cold climates. The M915A3 and M915A5 can be transported on C-5 and C-17 aircraft and meet all applicable North Atlantic Treaty Organization interoperability criteria.

## BENEFIT TO THE SOLDIER

Through employment of truck transportation organizations, including organic, host nation and contracted assets, the Army Transportation Corps is the single largest provider of land surface movement capability to the joint force. Line Haul Operations are capable of supporting Full Spectrum Operations, from Major Combat Operations, Stability Operations and Civil

Support and therefore must have high reliability and be capable of protecting operators and crews from various threats. As the M915A3 and M915A5 serve as the prime movers for semi-trailers and are used to transport bulk cargo, containers and bulk liquids (petroleum/water) from ports to forward areas, they are the backbone to the Army Transportation Corps.

The M915A3 and M915A5 Line Haul Tractor Trucks fulfill the Army requirement for heavy haulers. The M915A5 offers the latest vehicle safety and crew comfort, increased crew protection, improved range and fuel efficiency, and has better reliability due to onboard diagnostics.

## SPECIFICATIONS

### • Line Haul Tractor Truck (M915A5):

- Size: 6x4 semi-tractor with sliding non-lubricated fifth wheel (2-inch kingpin)
- Gross Combination Weight Rating (GCWR) (maximum allowable weight of the loaded semi-tractor and its attached loaded trailer determined by the tractor manufacturer): 120,000 pounds
- Engine: Detroit Diesel S60 (500 horsepower, 1,650 foot-pounds torque, Detroit Diesel Electronic Control (DDEC) IV engine controller)
- Transmission: Allison HD4500SP (6-speed automatic)
- 100 percent more Electrical Power Reserve (power headroom)
- Improved Anti-lock Brake System (ABS)
- Rollover Stability Control System
- Tilt/Telescoping Steering
- Collision Warning System Eaton VORAD
- LED Headlights
- High-efficiency air conditioning
- Maximum towing speed: 65 mph with full payload on flat terrain

- **Line Haul Tractor Truck (M915A3):**
  - Size: 6x4 semi-tractor with semi-lubricated fifth wheel (2-inch kingpin)
  - GCWR: 105,000 pounds
  - Engine: Detroit Diesel S60 (430 horsepower, 1,450 foot-pounds torque, DDEC IV engine controller)
  - Transmission: Allison HD5460P (6-speed automatic) with power take-off
  - ABS
  - Collision Warning System Eaton VORAD
  - Air conditioning
  - Maximum towing speed: 65 mph with full payload on flat terrain

### PROGRAM STATUS

- **FY16-FY18:**
  - M915A5 truck production completed and transitioned to Sustainment (Integrated Logistics Support Center, U.S. Tank-automotive and Armaments Command, Michigan).
  - M915A5 Armor contract continues to produce armor through 3QFY19 to meet the Tactical Wheeled Vehicle (TWV) strategy to procure and maintain armor kits for greater than or equal to 30 percent of the TWV fleet size and meet Headquarters, Department of the Army G-8 needs. The next armor solicitation for contract award is currently being developed.

### PROJECTED ACTIVITIES

- **FY18-FY19:** Continued divestment of older M915 variants (A0, A1, A2 and A4). The M915A3 and M915A5 will continue to augment or replace assets in the current aging line haul fleet of legacy M915, M915A1, M915A2 and M915A4 series tractors and will allow insertion of improved technologies within the Active Army, Reserve and National Guard components.
- **FY19-FY23:** Next armor contract strategy is being developed for Make or Buy decision. However, regardless of manufacturer, the B-Kits will be produced and shipped to Army Prepositioned Stock locations for installation as well as placed in long-term storage under U.S. Army Materiel Command Operational Projects.

## Line Haul Tractor

### FOREIGN MILITARY SALES

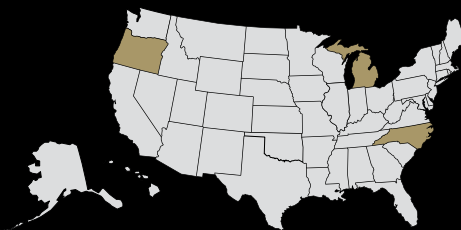
Afghanistan

### CONTRACTORS

**Prime Contractors:** Daimler Trucks North America LLC/Freightliner (Portland, OR; Cleveland, NC)

**Engine:** Detroit Diesel (Detroit, MI)

**ABS Brakes:** Meritor (Troy, MI)



# Line of Communications Bridge (LOCB)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation  
 Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation &  
 Risk Reduction  
**Engineering & Manufacturing  
 Development**  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Line of Communications Bridge (LOCB) restores and maintains line of communication routes in theater, supporting both civilian and military traffic. Intended for long-term emplacement, it consists of mission-configurable ramp and span segments. LOCB comes in two military configurations: 50-meter fixed and 280-meter float. Launch time requires up to eight hours with 29 Soldiers.

## BENEFIT TO THE SOLDIER

LOCB bridging is focused on sustainment of the force. LOCB supports the focused logistics concept by its ability to facilitate sustainment of widely dispersed forces over a large area of operation. As such, the LOCB facilitates the uninterrupted flow of forces, equipment, personnel and supplies for sustained ground operations for the warfighter, allied, coalition and host nation forces and displaced civilians.

## SPECIFICATIONS

- Maximum load capacity: 150 wheeled or 120 tracked vehicles
- Roadway width: 5 meters
- Assembled length: Spans gaps up to 300 meters

## PROGRAM STATUS

- None

## PROJECTED ACTIVITIES

- **2QFY20:** Milestone C
- **4QFY22:** Full Rate Production Decision
- **2QFY23:** First Unit Equipped



# LOCB

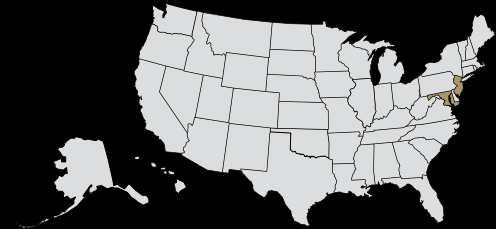
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Acrow Bridge (Parsippany, NJ)

Mabey, Inc. (Elkridge, MD)



# Load Handling System Compatible Water Tank Rack (Hippo)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Load Handling System Compatible Water Tank Rack (Hippo) enhances and expedites the delivery of bulk potable water into the division and brigade areas. It represents the latest in bulk water distribution technology and replaces the 3,000 and 5,000 semitrailer-mounted fabric tanks.

The Hippo is fully functional, mounted or dismounted, and is air- and ground-transportable when full, partially full or empty. It is Heavy Expanded Mobility Tactical Truck Palletized Load System (PLS) and PLS trailer compatible. The Hippo can be moved and set up rapidly using minimal assets and personnel. No site preparation is required, and its modular configuration supports expeditionary joint forces operations.

## BENEFIT TO THE SOLDIER

Hippo provides the Army with the capability to receive, store and distribute potable water to warfighting units deployed throughout the battlefield.

## SPECIFICATIONS

- Consists of a 2,000-gallon potable-water tank in an International Organization for Standardization frame
- Employs integrated pump, engine, alternator, filling stand and 70-foot hose reel with bulk suction and discharge hoses
- Pumps 125 gallons of water per minute
- Prevents water from freezing in cold weather environments down to minus 25 degrees Fahrenheit

## PROGRAM STATUS

- **3QFY18:**
  - Start of Work Meeting; Urgent Buy Contract
  - Production Verification Test; Urgent Buy Contract
  - Acquisition Plan approval; follow-on production contract
- **4QFY18:** Urgent Buy Fielding through FY19

## PROJECTED ACTIVITIES

- **1QFY19:** Source Selection Evaluation Board (follow-on production contract)
- **3QFY20:** Development Test/Operational Test
- **FY20-FY23:** Production



# Hippo

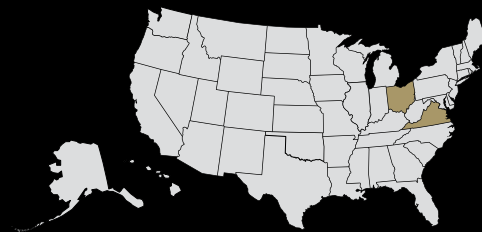
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Mil-Mar Century, Inc. (Miamisburg, OH)

Entwistle (Danville, VA)



# Man-portable Radiological Detection System (MRDS)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The Man-portable Radiological Detection System (MRDS) capability will provide increased Radiological and Nuclear (RN) detection, localization, presumptive identification and field-confirmatory identification capabilities that are networked to provide situational awareness at the tactical level. The MRDS will support Countering Weapons of Mass Destruction (CWMD) Interdiction and Elimination operations, specifically RN Sensitive Site Assessments and Sensitive Site Exploitation. Future capability may also support Reconnaissance and Surveillance across the full range of CWMD operations. This capability supports Radiological and Nuclear Interdiction and WMD-Elimination operations to: systematically locate, secure, characterize and disable WMD programs and related capabilities.

## BENEFIT TO THE SOLDIER

The MRDS replaces low-density legacy equipment.

## SPECIFICATIONS

- Hand Held Sensor:
  - Overall Dimensions (including handle and Ge detector endcap): 15.5 in L x 6.25 in W x 8.25 in H (39.5 cm L x 16 cm W x 21 cm H).
  - Weight: 15.4 lbs (6.98 kg) gamma only; 16.8 lbs (7.62 kg) gamma/neutron.
  - Internal Battery: Two Rechargeable Lithium Ion; 98 Wh each, nominal; over eight hours of battery life at 25°C when HPGe detectors are cold; <4 hours to charge; internal battery is easily swapped
  - External Battery: Battery lifetime may be extended indefinitely by the use of optional external battery packs. An external military battery (Model 2590) weighs less than 3.25 lbs and extends lifetime to more than 16 hrs.

- Input Power: 12 to 17 V DC from battery or DC power supply (universal mains supply included).
- Power Usage: Highest during cool down and charging battery: <100 W; cold with fully charged battery <35 W
- Operation Range Temperature: -20°C to 50°C
- Relative Humidity: 95% non-condensing
- Instrument Enclosure: IP65 sealed against ingress of dust and water. All perforations are sealed by rubber plugs (connectors, memory cards, etc.)
- Wireless Connectivity: IEEE 802.11a/b/g/e/i/h/j standards and IEEE 802.11n wireless and Bluetooth

## PROGRAM STATUS

- **4QFY17:** Capability Production Document signed
- **3QFY18:** Milestone C granted by Milestone Decision Authority

## PROJECTED ACTIVITIES

- **2QFY19:** Test Article Delivery
- **4QFY20:** Full Rate Production

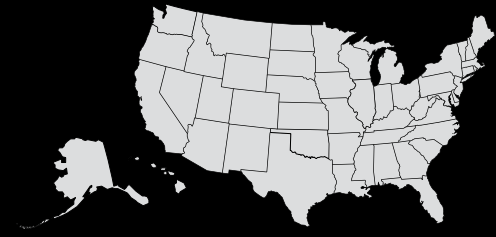
# MRDS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



# Man Transportable Robotic System Increment II (MTRS Inc II)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Man Transportable Robotic System Increment II (MTRS Inc II) is a remotely operated, medium-sized robotic system that provides a standoff capability to detect, confirm, identify and dispose of hazards. MTRS Inc II has a standard chassis and modular mission payloads in support of current and future missions. MTRS Inc II supports engineers, Chemical, Biological, Radiological and Nuclear (CBRN) Soldiers and Special Operations forces.

## BENEFIT TO THE SOLDIER

The MTRS Inc II provides the warfighter with a standoff ability to locate, identify and clear landmines, unexploded ordnance and improvised explosive devices in the path of maneuvering Army or joint forces. It also provides CBRN Soldiers with the capability to employ CBRN sensors from a distance.

## SPECIFICATIONS

- Handheld controller allows operator a standoff capability to operate MTRS Inc II from a mounted or dismounted location and receive video and vehicle control data
- Allows multiple payload platforms to improve support to Soldiers in current and future operating environments

## PROGRAM STATUS

- **4QFY17:**
  - Milestone B/C
  - Production contract awarded

## PROJECTED ACTIVITIES

- **2QFY19:** Limited User Test
- **4QFY19:** Conditional Materiel Release/First Unit Equipped

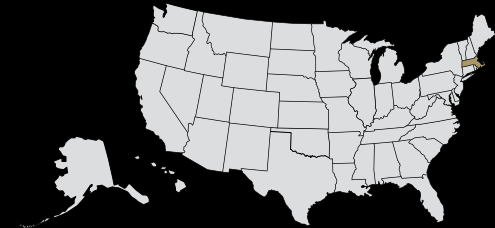
# MTRS Inc II

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Endeavor Robotics (Chelmsford, MA)



# Medical Countermeasure Systems (MCS) — Biological Defense Therapeutics (BDTX)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The mission of Medical Countermeasure Systems (MCS) — Biological Defense Therapeutics (BDTX) is to provide U.S. military forces and the nation safe, effective, innovative and affordable therapeutic solutions to counter traditional, emerging and engineered biological threats.

The BDTX portfolio consists of:

- **Antiviral Therapeutic (AVTX)**, which provides therapeutic or protection against the effects of Hemorrhagic Fever Virus (HFV) families (Filoviridae and Bunyaviridae) and Encephalitic Alphaviruses (Togaviridae), thus sustaining the warfighter to complete the mission. HFV countermeasures will mitigate the threat of illness or death, as well as lessen issues with performance degradation resulting from exposure to hemorrhagic fever viruses (Ebola and Marburg). Due to the severity of these diseases, HFV therapeutics will be administered to exposed warfighters while under direct medical observation.
- **Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B)** develop post-exposure medical countermeasures to treat service members exposed to bacterial threats engineered to defeat current antimicrobial countermeasures. CMDR-B therapeutics will be administered to exposed warfighters while under direct medical observation.

## BENEFIT TO THE SOLDIER

MCS BDTX provides therapeutic solutions to counter traditional, emerging and engineered biological threats.

## SPECIFICATIONS

- System attributes established in requirements documentation

## PROGRAM STATUS

- **FY16-FY18:**
  - **AVTX:**
    - Stood up Joint Mobile Emerging Disease Intervention Clinical Capability to execute human clinical research of experimental therapeutics in an emerging infectious disease outbreak setting
    - Initiation of second site NHP pivotal efficacy study design
  - **CMDR-B:**
    - Other Transaction Authority Award Medical Countermeasures for multidrug resistant bacteria

## PROJECTED ACTIVITIES

### AVTX:

- **FY19:** Natural History Study Results
- **FY22:** Milestone C

### CMDR-B:

- **FY19:**
  - Market Research analysis
  - Prototype Testing analysis results
  - Milestone B





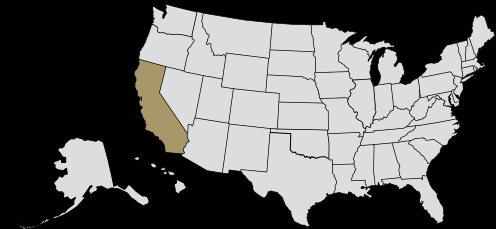
## MCS — BDTX

### FOREIGN MILITARY SALES

None

### CONTRACTORS

AVTX: Gilead Sciences (Foster City, CA)



# Medical Countermeasure Systems (MCS) – Diagnostics

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The mission of Medical Countermeasure Systems (MCS) – Diagnostics (DX) is to develop, acquire, integrate and field identification technologies and Federal Drug Administration (FDA) cleared diagnostic devices intended for service members to aid in the early diagnosis, prevention and treatment of the effects of exposure to chemical, biological and radiological agents.

The Diagnostics portfolio consists of:

- **Joint Biological Agent Identification and Diagnostic System (JBAIDS): Fielded**

A reusable, portable, modifiable biological agent identification and diagnostic system capable of rapid, reliable and simultaneous identification of multiple biological agents and other pathogens of operational concern. Sixteen pathogen surveillance assay kits are deployed covering 14 Biological Warfare (BW) agents. In addition, seven FDA cleared In Vitro Diagnostic (IVD) test kits (Anthrax, Tularemia, Plague and QFever) and the Platinum Path Extraction Kits are available through the Defense Logistics Agency. In addition, the JBAIDS has eight FDA approved prepositioned Emergency Use Authorization data packages for IVD assays (Ebola Zaire, Ebola Sudan, PanEbola, Marburg Ci67, Marburg Musoke, Marburg RAVN, Marburg Angola and PanMarburg) for the identification of low-probability, high-consequence pathogens in clinical samples that can be deployed in the event of a declared health emergency.

- **Next Generation Diagnostic System (NGDS) Increment 1:**

A FDA-cleared reusable, adaptable biological pathogen diagnostic and identification system capable of rapidly analyzing clinical and environmental samples. The BWA Warrior Panel (Anthrax, Plague, Tularemia, Q Fever, Ebola and Marburg) is cleared by the FDA for use with blood culture, whole blood and sputum samples to aid in human

diagnosis. Fielding to Air Force units began in May 2017. The Sentinel Panel includes targets for Anthrax, Tularemia, Q Fever, Ebolavirus, Marburg, Y.pestis, Burk psuedomallei, Burk mallei, Brucella sp, Brucella melitensis, Rickettsia Prowazekii, EEE, VEE, WEE, Orthopox, Variola, Ricin, Bot, training assays (Bacillus globigii, Bacillus thuringiensis, yeast) for surveillance and environmental applications.

- **NGDS – 2:**

A family of systems that provides expanded diagnostic capabilities to lower echelons of care (roles of care 1-3) and complement diagnostic capabilities by addressing objective chemical, biological and radiological diagnostic threats.

## BENEFIT TO THE SOLDIER

**JBAIDS:** Provides rapid positive identification and diagnostic confirmation of Biological Warfare Agents and other pathogens of operational concern.

**NGDS:** NGDS diagnostic capabilities will be employed in Army and Air Force (Role 3) and Navy (Role 2 and 3) deployable Combat Health Support units, with applicability to routine healthcare at higher echelons. NGDS Increment 1 will support accurate patient treatment, force health protection and chemical, biological, radiological and nuclear situational awareness.

## SPECIFICATIONS

- **JBAIDS:**

- Sample Preparation Time: 25-65 minutes per sample
- Total Time to Result: 90-135 minutes (DNA vs RNA)
- Samples analyzed per run: 7 samples (including controls)
- Number of organisms analyzed per run: Max 5 targets (without inhibition controls); operator must know what to test for
- Types of organisms analyzed: Biological Warfare Agents, Influenza

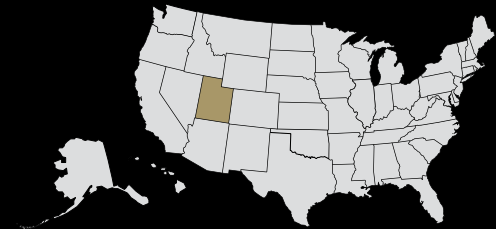
# MCS – Diagnostics

## FOREIGN MILITARY SALES

None

## CONTRACTORS

BioFire Defense, LLC (Salt Lake City, UT)



- Configuration: instrument, laptop with software, support equipment, sample preparation kits and consumables
- Footprint (analyzer, support equipment and consumables): ~1,150 pounds and 87 cubic feet
- **NGDS:**
  - Sample Preparation Time: 5 minutes per sample
  - Total Time to Result: 70 minutes
  - Samples analyzed per run: 1 sample – multiple agents
  - Number of organisms analyzed per run: 14-27 targets depending on panel
  - Types of organisms analyzed: Biological Warfare Agents, many common infectious disease agents (125+ additional targets)
  - Configuration: instrument, laptop with software, sample preparation kits and consumables
  - Footprint (analyzer, support equipment and consumables): 62 pounds and 6 cubic feet

## PROGRAM STATUS

- **FY17:** Initiated replacement of JBAIDS with NGDS Increment 1
- **1QFY16:**
  - NGDS Increment 1 Milestone C
  - NGDS Increment 1 U.S. Air Force (USAF) Full Operational Capability (FOC)
- **3QFY17:**
  - NGDS Increment 1 FDA Clearance
  - NGDS Increment 1 USAF Initial Operational Capability (IOC)
- **4QFY18:** Full Rate Production Decision

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - All JBAIDS replaced with NGDS Increment 1
  - NGDS-2: Man Portable Diagnostics System (MPDS) Milestone B, MPDS Milestone C, ChemDx Milestone B, ChemDX Milestone C
- **FY19:** NGDS Increment 1 Army IOC
- **FY20:**
  - NGDS Increment 1 Army FOC
  - NGDS Increment 1 Navy IOC
- **FY21:** NGDS Increment 1 Navy FOC



# Medical Simulation Training Center (MSTC)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Medical Simulation Training Center (MSTC) Increment 1 provides realistic medical training to both medical and non-medical Soldiers in the Active, Reserve and National Guard (NG). MSTC provides hands-on instruction on the latest battlefield trauma and critical care techniques based on Army Medical Department approved performance-oriented training curricula. Medical treatment validation exercises simulate the high stress of performing medical interventions in combat. MSTC supports Unit Medical Readiness by validating Combat Medic (military occupational specialty 68W) Emergency Medical Technician biennial recertification requirements and providing combat lifesaver training to non-medical Soldiers.

Increment 2 will focus on improving health care at the first responder, combat medic, Special Operations medic and forward deployed surgical levels to better meet individual commander's casualty response system needs now and in the Force 2025 operating environment.

## BENEFIT TO THE SOLDIER

The MSTC saves Soldiers' lives through enhanced hands-on medical training, which is provided and taught under realistic battlefield conditions. From this sustainment and validation medical training, first responders are able to provide emergency medical treatment for the three main preventable causes of death on the battlefield (hemorrhage, airway compromise and tension pneumothorax).

## SPECIFICATIONS

- MSTC consists of:
  - A 7,000-square-foot structure
  - Virtual Patient System
  - Instructor Support System

- Medical Training Evaluation System
- Medical Training Command and Control (MT-C2)
- Professional instruction and administrative support

## PROGRAM STATUS

- **4QFY17:**
  - Sustainment and Maintenance
  - Technical refresh and concurrency refresh on Medical Training Aids, Devices, Simulators and Simulations; MT-C2; and Tactical Combat Casualty Care (TC3) developmental efforts
- **1QFY18:** Award of Virtual Patient Simulation Systems Contract
- **2QFY18:** Award of TC3 Exportable (TC3X) contract
- **3QFY18-4QFY18:** TC3X Production/Fielding

## PROJECTED ACTIVITIES

- **1QFY19-4QFY19:** High Fidelity Patient Simulator production/fielding
- **1QFY19-4QFY20:** TC3X Production/Fielding
- **2QFY19:** MT-C2 System Production Start
- **FY21:** New MSTC facility fielding (Fort Hood, Texas)
- **FY21-FY22:** TC3X Technical Refresh: Production/Fielding
- **FY22:**
  - New MSTC facility fielding (Fort Bragg, North Carolina)
  - MT-C2 Concurrency Upgrades: All MSTC facilities (25)
- **FY23:** New MSTC facility fielding (Camp Bullis, Texas) (NG)
- **FY24:** New MSTC facility fielding (Camp Williams, Utah) (NG)



# MSTC

## FOREIGN MILITARY SALES

Lithuania

## CONTRACTORS

General Dynamics Mission Systems (Fairfax, VA)

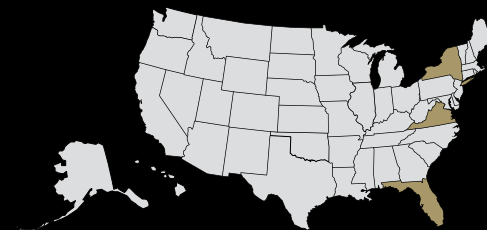
Riptide Software, Inc. (Oviedo, FL)

Raytheon Intelligence, Information and Services (Dulles, VA)

General Dynamics Information Technology (Falls Church, VA)

Laerdal Medical (Wappingers Falls, NY)

KGS (Fairfax, VA)



# Medical Support Systems and Evacuation (MSSE)

U.S. Army Medical Research and Materiel Command | Fort Detrick, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Medical Support Systems and Evacuation (MSSE) is a family of products supporting medical evacuation (MEDEVAC), casualty extraction and movement, and operational and preventive medicine. This program supports Soldier and medical evacuation readiness and modernization. The portfolio includes:

- **MEDEVAC and Treatment Vehicle Medical Equipment Package (MEP) (Non-ACAT)**

This program supports unique medical evacuation requirements for air and ground vehicles. In partnership with Program Executive Office (PEO) Aviation and PEO Ground Combat Systems, these programs address specifications, product development, testing and integration of medical equipment into the UH-60M Air Ambulances and the Armored Multipurpose Vehicle Ambulance and Treatment/Evacuation variants.

- **Environmental Sentinel Biomonitor (ESB) (ACAT IV)**

The ESB rapidly screens and identifies toxic industrial chemicals in field drinking water. It will be used by Preventative Medicine personnel in support of Brigade Combat Teams and higher. The Environmental Protection Agency (EPA) registered device allows enhanced screening of local water sources to validate that industrial chemical contaminants are below safe threshold levels.

- **Future Vertical Lift (FVL) Medical MEP (Non-ACAT)**

In concert with PEO Aviation, the MSSE supports the development of the medical variants in the FVL program. Each medical variant requires design, development, testing and validation of the MEDEVAC equipment and patient movement items including defibrillator, ventilator and vital signs monitors.

- **Health Readiness and Performance System (HRAPS) (ACAT III)**

In partnership with PEO Soldier, the HRAPS supports the health and medical mission of an integrated system of wearable sensors that provide commanders with actionable information to improve performance and mitigate injuries. Increments will address heat injuries, alertness, cognition and physical readiness.

- **Transport Telemedicine System (TTS) (ACAT III)**

The Medical Hands-Free, Ultra-Wideband Broadcast (MEDHUB) systems will capture patient status and treatment data at remote sites and enroute to higher roles of care/ Medical Treatment Facilities (MTF). The MEDHUB will provide hands-free, electronic creation of essential medical data, providing deployed MTFs with patient information before arrival, improving care, safety and patient outcomes without additional burdens on medics.

- **Chemical Patient Protective Wrap (CPPW) (ACAT IV)**

The military unique CPPW was modernized and upgraded to replace a late 1980s legacy product with the new version manufactured in partnership with Pine Bluff Arsenal. Designed similar in style to a sleeping bag, the CPPW is a portable, protective, patient transport device, which allows for patient treatment while protecting patients from contamination by chemical agents and pathogens of operational and clinical concern.

## BENEFIT TO THE SOLDIER

MSSE products improve health outcomes, support medical evacuation, prevent illness and injury, enhance operational readiness and improve Soldier lethality.

## SPECIFICATIONS

- System attributes include Environmental Protection Agency registration, user evaluations, air worthiness certification and effectiveness

## PROGRAM STATUS

- **FY16-FY18:** Products are in varying stages of completion, ranging from Materiel Development Decision through Initial Operation Capability

## PROJECTED ACTIVITIES

- **FY19-FY23:** Products will continue progress through Development and Full Operational Capability



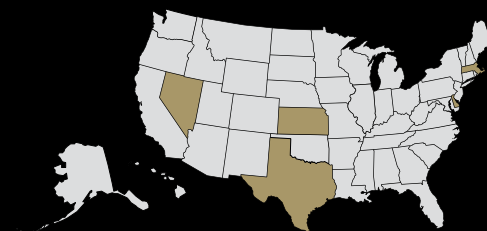
# MSSE

## FOREIGN MILITARY SALES

None

## CONTRACTORS

ANP Technologies (Newark, DE)  
Nanohmics (Austin, TX)  
Polo Custom Products, Inc. (Topeka, KS)  
Massachusetts Institute of Technology, Lincoln Laboratory (Cambridge, MA)  
Sierra Nevada Corporation (Las Vegas, NV)



# Medium Dozer — T-9

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
**Production & Deployment**  
Operations & Support

## DESCRIPTION

The T-9/D7R dozer model is a medium drawbar, air-transportable by C-5 and C-17, diesel-engine-driven crawler tractor with a dozer blade and optional winch (Type I) or ripper (Type II). The medium dozer is a commercial vehicle with military modifications to include North Atlantic Treaty Organization start, arctic kit, rifle rack and armor C-Kit capability.

The vehicle provides cutting, moving and finish-grading capabilities to support various construction tasks such as building and maintaining roads, airfields and shelters.

## BENEFIT TO THE SOLDIER

The T-9/D7R-II medium dozer is used to build and maintain air and ground lines of communication such as airfields and main supply routes, which enhances infrastructure and force protection for the warfighter.

## SPECIFICATIONS

- Maximum speed: 6.6 mph forward, 8.4 mph reverse
- 105,820 pounds drawbar pull
- 3 forward and 3 reverse gears
- Dimensions:
  - With winch: 273 inches long, 139 inches high and 145 inches wide; Weight: 62,000 pounds without armor; 66,000 pounds with armor
  - With ripper: 289 inches long, 139 inches high and 145 inches wide; Weight: 65,000 pounds without armor; 69,000 pounds with armor

## PROGRAM STATUS

- **FY16-FY17:** Fielded and trained 241 T-9 Dozers and operators
- **2QFY17:** T9 Dozer Full Operative Capability
- **3QFY18:** Dozer Production complete

## PROJECTED ACTIVITIES

- None



## Medium Dozer — T-9

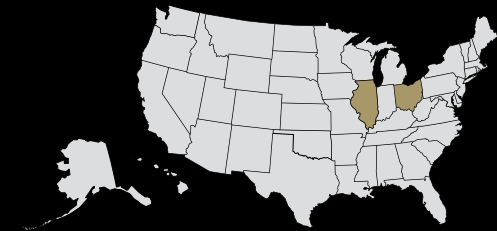
### FOREIGN MILITARY SALES

Uganda

### CONTRACTORS

Caterpillar, Inc. (Peoria, IL)

BAE Systems (Cincinnati, OH)



# Mobile Maintenance Equipment Systems (MMES)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Mobile Maintenance Equipment Systems (MMES) provide a two-level maintenance capability to the warfighter. Eight interconnected maintenance systems are distributed throughout the Army at multiple levels and provide a holistic repair capability in all environments. This approach meets the Army's two-level maintenance philosophy and supports the current force while also providing modular configurations to meet the specific needs of the Army in today's transforming environment.

## BENEFIT TO THE SOLDIER

MMES provides technological advancements and professional-grade tools with lifetime warranties that will save the Army money for years to come. This integrated maintenance system serves to consolidate Line Item Numbers to one and equips our forces with the most current and accurate tools to complete the mission while performing maintenance on the latest technologically advanced equipment and weaponry.

## SPECIFICATIONS

MMES family of systems includes:

- Metal Working and Machining Shop Set (MWMSS)
- Fire Suppression Refill System (FSRS)
- Armament Repair Shop Set (ARSS)
- The Hydraulic Systems Test and Repair Unit (HSTRU)
- Next Generation Shop Equipment, Welding Trailer (NG SEW)
- Next Generation Shop Equipment Contact Maintenance (NG SECM)
- Forward Repair System
- Standard Automotive Tool Set

## PROGRAM STATUS

- **1QFY16:** FSRS: Milestone C Low Rate Initial Production (LRIP)
- **2QFY18:** MWMSS: Full Materiel Release
- **3QFY18:** MWMSS: First Unit Equipped (FUE)

## PROJECTED ACTIVITIES

- **1QFY19:** NG SECM: Research, Development, Test and Evaluation efforts
- **2QFY19:** HSTRU: Full Operational Capability
- **4QFY19:**
  - NG SEW: LRIP
  - FSRS: FUE

# MMES

## FOREIGN MILITARY SALES

None

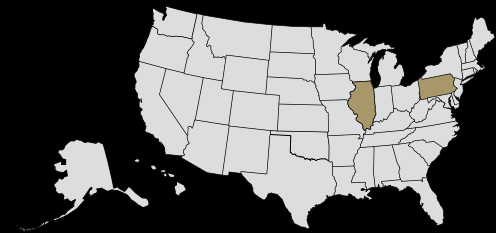
## CONTRACTORS

**MWSS and FSRs:** Joint Manufacturing & Technology Center (Rock Island, IL)

**ARSS:** Tobyhanna Army Depot (Tobyhanna, PA)

**HSTRU:** Mandus Group (Rock Island, IL)

**SEW Trailer:** Capability Production Document still in staffing; (Rock Island, IL)



**Metal Working & Machine Shop Set (MWMSS)**



**Hydraulic System Test & Repair Unit MX3 (HSTRU)**



**Armament Repair Shop Set (ARSS)**



**Fire Suppression Refill System (FSRS)**

# Modular Fuel System (MFS)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The Modular Fuel System (MFS) rapidly establishes fuel distribution and storage capability at any location regardless of material handling equipment availability. The MFS performs both retail and bulk fueling operations, and is capable of receiving, storing, filtering and issuing all kerosene-based fuels.

MFS is composed of 14 Tank Rack Modules (TRM) and one of the pump and filtration modules, commonly known as Pump Rack Modules (PRM). The TRM can be used with the PRM, the Heavy Expanded Mobility Tactical Truck (HEMTT) tankers or as a stand-alone system. When used with the HEMTT tanker, the TRM doubles the HEMTT tanker capacity to 5,000 gallons of fuel. The MFS is transported by the HEMTT Load Handling System and the Palletized Load System.

The PRM has an evacuation capability that allows the hoses in the system to be purged of fuel prior to recovery and can refuel both ground vehicles and aircraft.

## BENEFIT TO THE SOLDIER

The MFS enables retail operation for the warfighter by storing, transporting and issuing fuel.

## SPECIFICATIONS

- TRM includes continuous duty retail pump, flow meter, filter separator and 2,500-gallon tank
- PRM includes self-priming, 600-gallons-per-minute diesel-engine-driven centrifugal pump; filter separator; valves; fittings; hoses; refueling nozzles; aviation fuel test kits; fire extinguishers; grounding rods; flow meter and North Atlantic Treaty Organization connectors

## PROGRAM STATUS

- **1QFY18:**
  - TRM M107A1 Full Materiel Release
  - TRM ongoing Fielding
  - PRM Request for Proposal Release for follow-on production contract
- **2QFY18:** TRM European Deterrence Initiative award

## PROJECTED ACTIVITIES

- **3QFY19:**
  - PRM First Article Test
  - PRM Production and Fielding
  - TRM follow-on Contract Award
- **2QFY20:** TRM Production and Fielding

# MFS

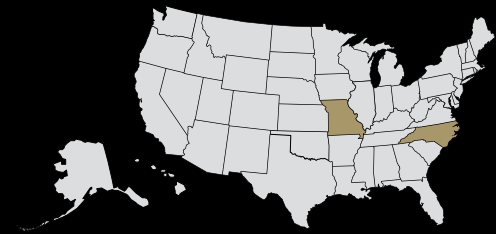
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Leonardo DRS (St. Louis, MO)

Isometrics, Inc. (Reidsville, NC)



# Mortar Systems

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The family of mortar systems provides organic, indirect fire support to the maneuver unit commander and is employed in all combat formations. The Army uses three variants of 120 mm mortar systems. The two mounted variants are the M121 120 mm mortar, used on the M1064A3 Mortar Carrier, and the 120 mm Recoiling Mortar System, used on the M1129 and M1252 Stryker Mortar Carriers. The M120A1 120 mm Towed Mortar System is the dismounted variant. The Mortar Fire Control System (MFCS) provides the warfighter improvements in command and control of mortar fires and the speed of employment, accuracy and survivability of mortars. The M95/ M96 MFCS – Mounted (MFCS-M), used on the M1064A3, M1129 and M1252, and the M150/ M151 MFCS-Dismounted (MFCS-D), used with the M120A1, combine a fire control computer with an inertial navigation and pointing system, allowing crews to fire in less than a minute and greatly improving mortar lethality and accuracy, and crew survivability. The Lightweight M252A1 81 mm Mortar System and Lightweight M224A1 60 mm Mortar System have been qualified and are in production and fielding. The M252A1 weighs 20 percent less and the M224A1 weighs 13 percent less than their legacy counterparts, yet maintain the same capability. All of the mortar systems fire a full family of ammunition including high-explosive, infrared and visible light illumination, smoke and training.

The M32 and M32A1 Lightweight Handheld Mortar Ballistic Computers have a tactical modem and embedded Global Positioning System, allowing mortar crews to send and receive digital call-for-fire messages, calculate ballistic solutions and navigate. The next-generation Android-based M32A2 is under development.

The XM395 Accelerated Precision Mortar Initiative (APMI) achieved an Urgent Materiel Release in March 2011. APMI has

been deployed and used in combat since June 2011. Based on the success of the APMI program, the Army is moving forward with the High Explosive Guided Mortar (HEGM) and in February 2015 validated the Capability Development Document.

## BENEFIT TO THE SOLDIER

Mortar Systems provide the maneuver commander rapid, responsive, hip-pocket indirect fires in support of combat operations.

## PROGRAM STATUS

- **1QFY16:** M32 Software Version 5.0 Materiel Release
- **1QFY16-4QFY16:** Fielding of the 60 mm Lightweight Mortar (M224A1)
- **1QFY16-4QFY17:** Fielding of the 81 mm Lightweight Mortar (M252A1); Production and Fielding of MFCS-D
- **2QFY16:** Production of M32A1; Materiel Development Decision
- **2QFY16-4QFY17:** Software integration for Android-based M32A2
- **3QFY16:**
  - Selection of new Mortar Weapon Systems, Mortar Weapon Components and MFCS prime contractors; conduct 60 mm M1061 mortar Full Materiel Release (FMR)
  - FMR for High Explosive (HE) 60 mm HE Enhanced Fragmentation M1061 cartridge
- **1QFY17-4QFY17:** Fielding M32A1
- **1QFY17:** 120 mm M929 WP Smoke Cartridge Production
- **2QFY17:** Milestone B and begin HEGM Engineering and Manufacturing Development (EMD); Production of M32A1
- **4QFY17:** Full Rate Production Decision Review (FRPDR) for HE 60 mm HE Enhanced Fragmentation M1061 cartridge
- **4QFY18:** Milestone C/Type Classified/Limited Production for the HE 81 mm HE M821A3E1; Fielding of M32A1
- **FY18:** Fielding of the 60 mm Lightweight Mortar (M224A1)

## PROJECTED ACTIVITIES

- **2QFY19:** Milestone B and HEGM (XM1160) EMD
- **FY20:** Fielding of the 81 mm Lightweight Mortar (M252A1)
- **4QFY20:** Type Classified-Standard/FMR/FRPDR for the 81mm HE M821A3E1

## SPECIFICATIONS

Mortar	Range (meters)	Ammunition
M120/M121 120 mm Mortar	7,240	War reserve HE (M934A1, white-phosphorus (WP) smoke (M929), visible light illumination (M930), infrared illumination (M983), war reserve and training (M933A1) and full-range practice (FRP) (M931). HEGM is in development.
M252 81 mm Mortar	5,935	War reserve HE (M821A3), red phosphorus smoke (M819), visible light illumination (M853A1), infrared illumination (M816), war reserve and training HE (M889A4) and FRP (M879A1).
M224 60 mm Mortar	3,489	War reserve HE (M720A2/M1061), WP smoke (M722A1), visible light illumination (M721), infrared illumination (M767), war reserve and training HE (M768A1) and FRP (M769).



# Mortar Systems

## FOREIGN MILITARY SALES

None

## CONTRACTORS

**60 mm and 81 mm mortar bipod production:** Matech (Salisbury, MD)

**60 mm and 81 mm baseplate production:** AMT (Fairfield, NJ)

**MFCS-D and MFCS-M production, fielding and installation:** Elbit Systems of America (Fort Worth, TX)

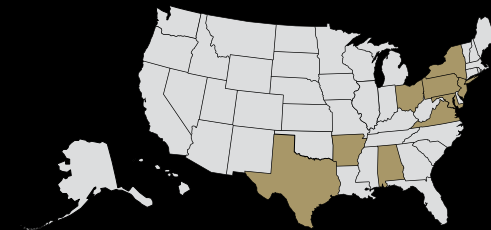
**M32A1 LHMBC (RTHD-2):** VT Miltope (Hope Hull, AL)  
**M32A2 (Nett Warrior):** PM Ground Soldier (Fort Belvoir, VA)

**120 mm, 81 mm, and 60 mm cannons:** Watervliet Arsenal (Watervliet, NY)

**Mortar ignition cartridge:** POCAL Industries, Inc. (Scranton, PA)

**Mortar cartridge load, assemble, package:** Pine Bluff Arsenal (Pine Bluff, AR)

**Mortar fuses:** L3 Fuzing and Ordnance Systems (Cincinnati, OH)



# Motor Grader — 120M

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation  
Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense  
Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
Technology Maturation &  
Risk Reduction  
Engineering & Manufacturing  
Development  
Production & Deployment  
Operations & Support

## DESCRIPTION

The 120M Motor Grader is a heavy-duty, pneumatic-tired commercial construction grader. It performs rough and fine grading, ditching, high-bank cutting and sloping and will serve the needs of Brigade Engineer Battalion, Infantry Brigade Combat Team and Equipment Support Company Airborne units employed and/or positioned throughout the entire range of military operations.

The 120M Motor Grader will be used along with other construction equipment to conduct general construction missions in support of repair, maintenance and construction of air and ground lines of communication, repair and restoration of infrastructure, and to enhance force and infrastructure protection. The Grader Type IA is air-droppable, Commercial Off-The-Shelf construction equipment that is fully adaptable to military operations.

## BENEFIT TO THE SOLDIER

The 120M Motor Grader improves and repairs air and ground lines of communication, such as airfields and main supply routes, which enhances infrastructure and force protection.

## SPECIFICATIONS

- Six-wheeled, commercial, construction grader with all-wheel drive, articulated frame steer and pneumatic tires
- Electro-hydraulic joystick control operation
- Automatic power shift transmission with eight forward and six reverse speeds

## PROGRAM STATUS

- **3QFY16:**
  - Type IA Full Materiel Release/Type Classified-Standard
  - Type IA First Unit Equipped
- **4QFY16:** Complete Type IA Army Acquisition Objective fielding of 20 systems
- **1QFY18:** Grader contract expiration
- **FY16-FY18:** Fielded and trained 68 Type 1 Graders

## PROJECTED ACTIVITIES

- **1QFY19:** Type I Full Operational Capability



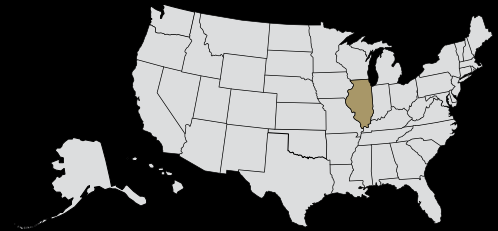
# Motor Grader — 120M

## FOREIGN MILITARY SALES

Afghanistan and Iraq

## CONTRACTORS

Caterpillar, Inc. (Peoria, IL)



# Neurotrauma and Psychological Health (NPH)

U.S. Army Medical Research and Materiel Command | Fort Detrick, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Mission of the Neurotrauma and Psychological Health (NPH) Project Management Office is to rapidly develop and field Food and Drug Administration (FDA) approved medical solutions across the continuum of care. These are solutions that aid in the detection, protection, prevention and treatment of neurotrauma/head injury and psychological health conditions, such as Traumatic Brain Injury (TBI), Post-Traumatic Stress Disorder and suicide. This program enables warfighter health, readiness and lethality. The portfolio consists of:

### • Laboratory Assays for TBI (LATBI)

This is a blood test to screen an injured service member for mild TBI. The test detects the presence of proteins in the blood as the result of brain injury. Initially, this test will be used as a point of care triage tool to determine if the service member requires the more definitive Computerized Tomography (CT) scan. Follow-on development/increments will be aimed at providing a stand-alone aid in the diagnosis of TBI.

### • Noninvasive Neuro-Assessment Devices (NINAD)

The development effort supports a device to provide reliable and accurate diagnosis of TBI.

- Increment I – Handheld device to screen service members for head injuries by scanning the outside of the head. These technologies will provide a non-invasive, rapid method to determine the need for a CT scan. In concert with the Rapid Equipping Force, units have been equipped with two FDA-cleared devices to support current urgent needs.

- Increment II – Technologies that can be used in conjunction with the LATBI to provide clinicians a broad spectrum of capabilities for diagnosing brain injury. These technologies include, but are not limited to, eye tracking and brain blood flow motion tracking.

## BENEFIT TO THE SOLDIER

TBI results in a variety of physical, cognitive, social, emotional and behavioral effects with outcomes ranging from complete recovery to permanent disability or death. Based on data from the past five years, the Department of Defense can expect to diagnose 20,000-25,000 cases of TBI per year across theater and garrison settings worldwide, regardless if deployed or not. However, TBI diagnosis still relies on self-report of the injury and incident. Early identification of TBI injuries will reduce lost duty time and prevent complications that may impact a service member's performance; therefore, keeping the Soldier in the fight, and improving their lethality.

## SPECIFICATIONS

- System attributes established in the requirements documentation that include FDA licensure

## PROGRAM STATUS

- **FY16-FY18:** Products are in varying stages of completion and undergoing Development Test/Operational Test

## PROJECTED ACTIVITIES

- **FY19-FY23:** Human studies will be conducted for these devices to receive FDA clearance



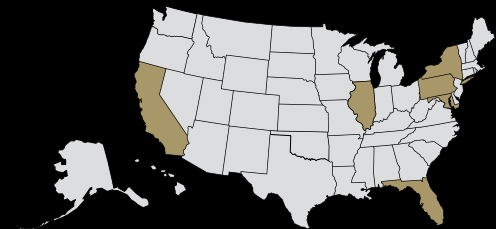
# NPH

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Abbott Point of Care (Abbott Park, IL and Canada)  
Banyan Biomarkers (San Diego, CA and Alachua, FL)  
BrainScope (Bethesda, MD)  
Infrascan (Philadelphia, PA)  
Oculogica (New York, NY)  
Neurokinetic (Pittsburgh, PA)



# Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) – Stryker Sensor Suites

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) – Stryker Sensor Suites is the Chemical, Biological, Radiological and Nuclear (CBRN) reconnaissance configuration of the Infantry Carrier Vehicle in the Stryker Brigade Combat Teams, Heavy Brigade Combat Teams and Chemical Companies.

The NBCRV—Stryker Sensor Suite consists of a dedicated system of CBRN detection, warning and biological-sampling equipment on a Stryker vehicle (high-speed, high-mobility, armored carrier). The NBCRV detects chemical, radiological and biological contamination in its immediate environment through the Chemical Biological Mass Spectrometer, Automatic Chemical Agent Detector Alarm, AN/VDR-2 Radiac Detector, AN/UDR-13 Radiac Detector and Joint Biological Point Detection Service Lightweight Standoff Chemical Agent Detector. It automatically integrates contamination information from detectors with input from onboard navigation and meteorological systems, and transmits digital Nuclear, Biological and Chemical (NBC) warning messages through the vehicle's command and control equipment to warn follow-on forces. The NBCRV can also collect samples for analysis.

## BENEFIT TO THE SOLDIER

The NBCRV—Stryker Sensor Suite supports the warfighter by performing NBC reconnaissance. It also locates, identifies, marks, samples and reports NBC contamination on the battlefield.

## SPECIFICATIONS

- Stryker variant with multiple unique sensors

## PROGRAM STATUS

- **1QFY18:** Full Operational Capability and Initiate Sensor Suite Enhancement Program

## PROJECTED ACTIVITIES

- **FY19:** Chemical Surface Detector (CSD) Milestone B
- **FY23:** CSD and NBRCV Sensor Suite Upgrade Milestone C

# Stryker Nuclear, Biological, Chemical Reconnaissance Vehicle



## NBCRV

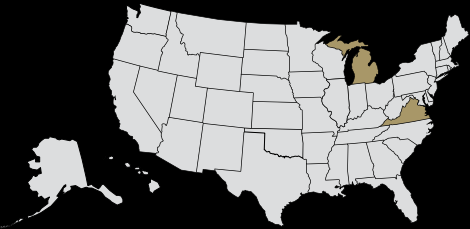
### FOREIGN MILITARY SALES

None

### CONTRACTORS

**Prime Vehicle:** General Dynamics Land Systems (Sterling Heights, MI)

**Sensor Software Integrator:** CACI (Lorton, VA)



# Pharmaceutical Systems

U.S. Army Medical Research and Materiel Command | Fort Detrick, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Pharmaceutical Systems includes Food and Drug Administration (FDA)-regulated vaccines, drugs, diagnostic tests and blood products that protect, treat and sustain warfighter health, readiness and lethality. The portfolio includes:

- **Malaria Prevention Drug (ACAT III)**  
Pills to prevent malaria during deployment. It is the only FDA approved antimalarial drug effective against all stages of malaria, is safer, and requires less frequent dosing than current drugs.
- **Intravenous Artesunate (IVAS) (ACAT IV)**  
An intravenous drug to treat warfighters with severe/complicated malaria. The IVAS is safer and more effective than current drugs, which it will replace after FDA approval. The IVAS is being tested under a special FDA protocol, and has safely been used around the world to save hundreds of lives since 2007.
- **Blood Products (ACAT III)**  
Blood products include Freeze Dried Plasma, Cryopreserved Platelets and Cold Stored Platelets in Platelet Additive Solution. On the battlefield, these products will be used far forward to stop bleeding and to replace lost fluids. Implementation will reduce the number of preventable deaths caused by bleeding, estimated to be approximately 24 percent of combat deaths before an injured warfighter reached a Medical Treatment Facility. These life-saving products will also significantly reduce the logistics burden compared to current blood products.
- **Dengue Tetravalent Vaccine (ACAT III)**  
A vaccine to protect warfighters from dengue virus, the most rapidly spreading mosquito-borne viral disease in the world.

Dengue causes debilitating illness to U.S. forces that results in approximately 14 lost duty days per event and reduces Soldier performance for approximately one month.

- **HIV Vaccines (ACAT III)**  
A vaccine to prevent HIV infection thus sustaining troop readiness (approximately 350 new service members infected per year) and mitigating financial impact of lifelong treatment (approximately \$500 million per year). The vaccine will protect against multiple subtypes representing over 97 percent of Department of Defense HIV infections.
- **Rapid Human Diagnostic Devices (ACAT IV)**  
“Dipstick” tests to rapidly diagnose a variety of military-relevant infectious diseases before the disease spreads, incapacitating troops and degrading the operational mission.

## BENEFIT TO THE SOLDIER

These products improve health, deployability, survivability and lethality by countering infectious diseases and enhancing battlefield trauma care.

## SPECIFICATIONS

- FDA approval
- Each drug, vaccine or blood product has individual technical and logistics specs

## PROGRAM STATUS

- **FY16-FY18:** Products are in varying stages of completion. Some have received FDA approval for limited, emergency or humanitarian use, pending full approval.

## PROJECTED ACTIVITIES

- **FY19-FY23:** Anticipated Milestone C dates for these products beginning in FY19



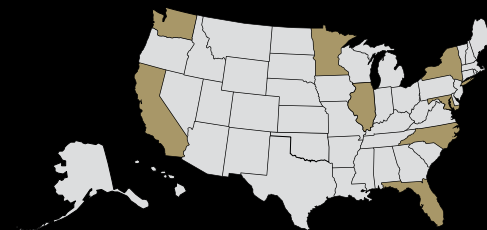
# Pharmaceutical Systems

## FOREIGN MILITARY SALES

None

## CONTRACTORS

60° Pharmaceuticals (Washington, DC)  
Amivas (Silver Spring, MD)  
Eurofins Advantar (San Diego, CA)  
Fast-Track Drugs and Biologics, LLC (North Potomac, MD)  
InBios International, Inc. (Seattle, WA)  
Janssen (Belgium)  
PPD (Wilmington, NC)  
State University of New York (Albany, NY)  
Takeda Pharmaceuticals (Deerfield, IL)  
University of Maryland (Baltimore, MD)  
Vascular Solutions Inc. (Minneapolis, MN)  
Westa (Rockville, MD)



# Radiological Detection System (RDS)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction  
**Engineering & Manufacturing Development**  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Radiological Detection System (RDS) is intended to replace the Department of Defense's legacy Radiation Detection, Indication and Computation (RADIAC) survey meters (PDR-77, MFR Suite and ADM-300).

RDS will provide warfighters with the capability to measure alpha, beta, gamma, neutron and low-energy X-rays. It is the first joint Rad/Nuc detector solution to increase capability and reduce life cycle costs, as well as address Operation TOMODACHI Lessons Learned for common, interoperable equipment with adequate sensitivity and common units of measure.

Additional capabilities beyond that of legacy RADIAC include Net-Readiness, incorporation of Global Positioning System data, and use of both conventional and international system measurement units.

## BENEFIT TO THE SOLDIER

The RDS will provide warfighters with the capability to measure alpha, beta, gamma, neutron and low-energy X-rays. RDS is much more capable than the PDR-77. RDS has three additional probes that the PDR-77 does not have: beta pancake probe, sensitive gamma probe, and neutron probe. The RDS is much more accurate than the PDR-77 since the RDS has temperature compensation and the PDR-77 does not have. Also the PDR-77 is a standalone system without radio or GPS connectivity and no data logging capability. Hence the users must write everything down and then transmit by voice. The RDS is networked with the radio and military GPS.

## SPECIFICATIONS

- Requirements Basis: Capability Development Document, January 2015
- Performance Specification: Amendment 3, dated 16 March 2017
- Contract Type: Cost Plus Fixed Fee (development)/Fixed Price Incentive (Successive Targets) (Production)

## PROGRAM STATUS

- **FY16-FY18:** Pre-Milestone Full Rate Production (FRP) Decision for Increment 1 (U.S. Army only)
- **4QFY16:** Contract Award
- **4QFY17:** Critical Design Review

## PROJECTED ACTIVITIES

- **1QFY18:** Test Article Delivery
- **1QFY19:** FRP for Increment 1 (U.S. Army only)





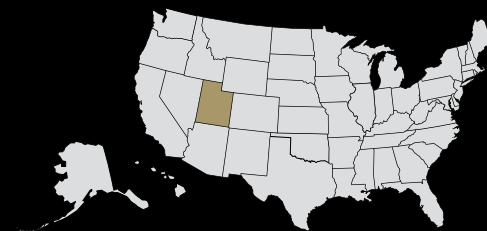
# RDS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Visionary Products, Inc. (Draper, UT)



# Raven Small Unmanned Aircraft System (SUAS) – RQ-11B

PEO Aviation | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The RQ-11B Raven is a Small Unmanned Aircraft System (SUAS). The SUAS provides reconnaissance, surveillance, target acquisition and force protection for the battalion commander and below during day and night operations. The Raven and its larger SUAS counterpart, the RQ-20 Puma, make up a formidable SUAS team. The SUAS is comprised of three air vehicles, a Ground Control Station (GCS), a remote video terminal (identical to GCS), Electro-Optical (EO) and Infrared (IR) payloads, aircraft and GCS batteries, a field repair kit and a spares package. Normal operational altitude is 500 feet or lower. The system, aircraft and ground control station are assembled by operators in approximately five minutes. Both color EO sensors and IR sensors are fielded for day and night capabilities with each system. A hand controller displays live video and aircraft status.

Mission planning is performed on the hand controller or ruggedized laptop running Portable Flight Planning Software/Falcon View Flight Planning Software. Aircraft flight modes include fully autonomous navigation, altitude hold, loiter and return home. In-flight retasking and auto-loiter at sensor payload point of interest are also available. Raven incorporates secure Global Positioning System navigation. The digital data link incorporates encryption, improves spectrum management allowing more air vehicles to be flown in an operational area, and provides range extension via data relay between two SUAS aircraft.

SUAS is operated by two Soldiers and has a rucksack-portable design. No specific military occupational specialty is required. Operator training requires 10 days.

## BENEFIT TO THE SOLDIER

SUAS provides the battalion-and-below ground-maneuver elements with an organic, on-demand asset to develop situational awareness, enhance force protection and secure routes, points and areas. The system provides the small unit commander a responsive tactical Reconnaissance, Surveillance and Target Acquisition capability through real-time, full-motion video and sensor data via the hand controller.

## SPECIFICATIONS

### Raven:

- Wingspan: 4.5 feet
- Weight: 4.2 pounds
- Range: 10 km
- Endurance: 90 minutes at 300 feet above ground level (AGL) or higher

### Puma:

- Wingspan: 9.2 feet
- Weight: 12.9 pounds
- Range: 10 km
- Endurance: 120 minutes at 500 feet AGL or higher

## PROGRAM STATUS

- **FY16-FY18:** In Sustainment

## PROJECTED ACTIVITIES

- **FY19-FY23:** Frequency Spectrum Reallocation

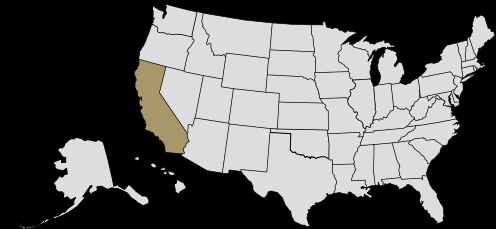
# Raven — RQ-11B

## FOREIGN MILITARY SALES

Denmark, Estonia, Lebanon and Uganda

## CONTRACTORS

Aerovironment, Inc. (Simi Valley, CA)



# Render Safe Sets, Kits & Outfits (RS SKO)

PEO Ammunition | Picatinny Arsenal, NJ



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Render Safe Sets, Kits & Outfits (RS SKO) consist of both Commercial Off-The-Shelf and government off-the-shelf solutions. RS SKO is intended to mitigate gaps associated with Counter Explosive Hazard (CEH) and Weapons of Mass Destruction (WMD) mission sets with enduring, sustainable and lightweight capabilities providing and supporting Explosive Ordnance Disposal (EOD) reconnaissance, threat detection, identification, diagnostics and render safe/neutralization, and incident evaluation and control.

Enhanced mission support capabilities provide extended/enhanced endurance and force protection for EOD personnel in dismounted operations in both complex and austere environments. RS SKO consists of non-developmental items to reduce fielding time and reduce research and development costs, allowing Technical Refresh, or rapid materiel updating through Technology Insertion.

## BENEFIT TO THE SOLDIER

RS SKO will provide enduring, sustainable, lightweight, CEH and WMD reconnaissance, detection, identification, diagnostics, render safe/neutralization, incident evaluation and control, and enhanced mission support capabilities to increase an EOD team's endurance, force protection and mission success while primarily supporting dismounted operations in complex and austere environments.

## SPECIFICATIONS

- Detection of buried low and high-metallic targets, carbon rod based improvised explosive devices, non-metallic conducted devices, and short and long wires
- Detect and localize radiation sources generated by manmade devices such as nuclear weapons, improvised nuclear devices or radiological dispersal devices using gamma and neutron radiation technology
- Diagnostics and identification of trace amounts of explosives, chemicals and drugs using field confirmatory Mass Spectroscopy
- Diagnose internal components of EH with digital X-ray processor/imager
- Incident evaluation and control using low-light visual augmentation system, Unmanned Aerial System for Intelligence, Surveillance and Reconnaissance and payload delivery (3 pounds threshold), and electronic countermeasures
- Final disposition and render safe is a multipurpose explosives/tools initiation device
- Power management controller/device uses automated power generation, distribution and scavenging

## PROGRAM STATUS

- **3QFY18:** Army Requirements Oversight Council Review Board

## PROJECTED ACTIVITIES

- **2QFY19:** Milestone Development Decision
- **1QFY21:** Milestone C
- **2QFY21:** Contract Award
- **4QFY22:** Initial Operational Capability

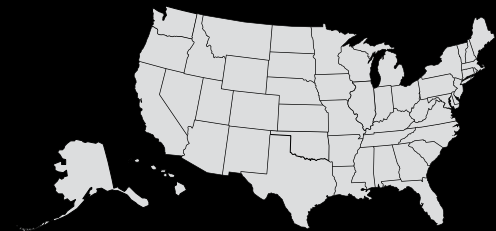
# RS SKO

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



Light Weight Demolition Device (LWDD)



Team Support Power Management



Lightweight ECM Capabilities



Lightweight Hand Held Detector Capability



Binocular Night Vision Device



Gamma/Neutron Detection/ID Capability



Handheld Mass Spectrometry Trace Detection



Lightweight Imager



Lightweight X-Ray Source



Unmanned Aerial Vehicle - ISR/Payload Capability

# Robotic Mine Flail — M160

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation  
 Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation &  
 Risk Reduction  
 Engineering & Manufacturing  
 Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The M160 Robotic Mine Flail clears areas infested with land mines and counters the effects of mines that could impede the mobility of friendly forces, destroy systems or cause personnel casualties. It protects against mine explosive fragments and clears mines with the flailing motion of high-speed, rotating chained hammers. The machine digs and pounds the soil, which results in the detonation or shattering of anti-personnel mines while protecting the system's engine and vital components with steel armor plates.

M160 is an improved version of the Commercial Off-The-Shelf DOK-ING MV-4 Mechanical Anti-Personnel Mine Clearing System. Real-time control of the mine clearing enables Soldiers to control the system from either a mounted or a standoff dismounted position using an Operator Control Unit (OCU). The M160 communication system transfers operating status and video feedback to the Soldier, allowing the Soldier to safely remain outside the range of exploding mines during the clearing process.

## BENEFIT TO THE SOLDIER

The M160 provides standoff protection to Soldiers while they clear areas of mines.

## SPECIFICATIONS

Major components:

- Engine
- Hydraulic system
- Flail head assembly
- Drive train
- OCU

## PROGRAM STATUS

- **2QFY17:** Begin Fielding

## PROJECTED ACTIVITIES

- **4QFY20:** Complete Fielding and full organic support

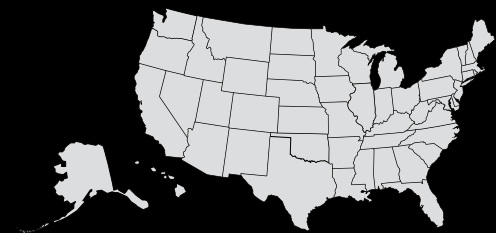
# M160

## FOREIGN MILITARY SALES

None

## CONTRACTORS

DOK-ING (Croatia)



# Rocket, Artillery, Mortar (RAM) Warn

PEO Missiles and Space | Redstone Arsenal, AL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Rocket, Artillery, Mortar (RAM) Warn is a horizontal technology insertion using current Counter-Rocket, Artillery, Mortar (C-RAM) warning capability to provide early, localized warning of incoming Indirect Fire (IDF) attacks to all Army maneuver Brigade Combat Teams (BCTs). Integration of RAM Warn equipment provides a warn capability to BCTs from detected threat RAM rounds and transmits detection data to the Command and Control (C2) element for correlation and determination of a predicted Point of Impact (POI). Based on the POI, the C2 determines which warning nodes should broadcast "incoming" warning alarms and transmits this information to the appropriate warning nodes.

The Huntsman Secure Network Radio (HSNR) LX4-Secret and Below modification effort will address end-of-life/obsolescence of the current Rajant Breadcrumb® LX4-4442 radio with in-line KG-175D encryption device. This modification provides the warfighter with significant operational benefits, including the HSNR-embedded encryption feature, which eliminates the KG-175D; and automated radio programming, which simplifies training and reduces set-up time from hours to minutes.

## BENEFIT TO THE SOLDIER

Timely warning enables BCT personnel in the hazard area of an inbound IDF threat to seek cover prior to impact, thus reducing casualties for the warfighter.

## SPECIFICATIONS

- Interfaces with the Air Defense Airspace Management (ADAM) Cell resident in the BCT headquarters
- Networks existing radars in the target acquisition platoon of the fires battalion

- Adds enhanced C2 warning devices, controllers and dedicated communications between the existing radars, the ADAM cell and warning systems

## PROGRAM STATUS

- **FY16:** Fielded/trained seven Active Component (AC) and one National Guard (NG) BCTs
- **FY17:** Fielded/trained six AC and 11 NG BCTs
- **FY18:** Fielded/trained one AC and 15 NG BCTs
- **2QFY18:** HSNR environmental and environmental and electromagnetic effects testing at Redstone Test Center, Alabama
- **3QFY18:**
  - HSNR Spectrum Certification/DD Form 1494 approval - J/F 12/11242
  - HSNR Engineering Change Proposal approval by National Security Agency
- **3QFY18-4QFY18:** HSNR logistics demonstration and technical manual verification
- **4QFY18:** RAM Warn equipment delivered to support European Deterrence Initiative

## PROJECTED ACTIVITIES

- **1QFY19:**
  - Field/train one AC BCT; completes Fielding to all Army BCTs
  - HSNR delta record test at Yuma Proving Ground, Arizona
- **FY19-FY21:** HSNR modification work order installed for all Army BCTs



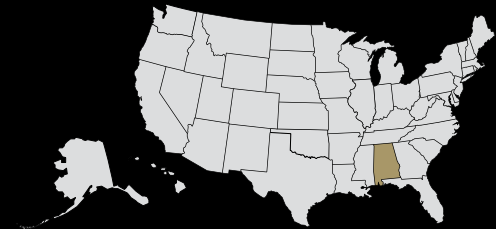
# RAM Warn

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Northrop Grumman (Huntsville, AL)



# Route Clearance Interrogation System (RCIS) Type 1

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

Route Clearance Interrogation System (RCIS) Type 1 enables the detection, interrogation and neutralization of Explosive Hazards (EH) while on the move and takes the Soldier out of the EH Kill Zone during Route Clearance Operations. RCIS will tele-operate the High-Mobility Engineer Excavator (HMEE) from a Buffalo control vehicle.

The RCIS Type I will allow for the semi-autonomous control of a Mobile Base Unit equipped HMEE and its capabilities from an Operator Control Unit (OCU) inside a Mine Protected Clearance Vehicle (MPCV). This capability will enable Soldiers to interrogate, classify and excavate deep-buried explosive hazards, improvised explosive devices and caches in a wide range of road surfaces and soil conditions. This capability is designed to remove Soldiers, other route clearance vehicles and equipment from the blast effects of EH.

## BENEFIT TO THE SOLDIER

RCIS Type I removes Soldiers from the blast effects of EH.

## SPECIFICATIONS

- Modified HMEE base platform will:
  - Provide by-wire control of the vehicle's automotive and interrogation functions
  - Add boom arm attachments (air spade, rake and spork, and clamshell bucket) to expand RCIS Type 1 interrogation capabilities
  - Integrate a semi-autonomous control system consisting of wireless communications equipment, cameras and processing capability that will allow vehicle control from an MPCV in a standoff position

- MPCV platform will be upgraded with wireless communications equipment, OCU controls, video display, head-aimed control viewer and other necessary equipment to control the HMEE from a standoff position

## PROGRAM STATUS

- **4QFY18:** Pre-Milestone B – Engineering and Manufacturing Development Contract Award scheduled

## PROJECTED ACTIVITIES

- **3QFY21:** Limited User Test
- **4QFY21:** Milestone C

# RCIS Type 1

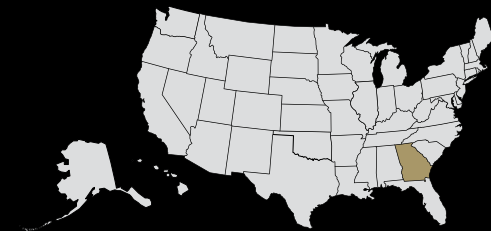
## FOREIGN MILITARY SALES

None

## CONTRACTORS

HMEE modifications: JCB (Pooler, GA)

Tele-operation: TBD



# Scraper — 621G

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation  
 Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation &  
 Risk Reduction  
 Engineering & Manufacturing  
 Development  
**Production & Deployment**  
 Operations & Support

## DESCRIPTION

The 621G Scraper is a self-propelled, open-bowl, two-axle, single-diesel-engine-driven vehicle with pneumatic tires. It is capable of being push loaded with a T-9 Medium Dozer, reducing bowl loading times to less than one minute, and accepting the armor Crew Protection Kit. The 621G Scraper is used for cutting, scraping, self-loading, hauling, dumping and spreading of earth during earth-moving operations.

## BENEFIT TO THE SOLDIER

The 621G Scraper provides cutting, dumping and spreading of soil in worldwide earth-moving and construction projects by U.S. Army Forces in engineer troop support.

## SPECIFICATIONS

- **Payload capacity:** 52,800 pounds and 22 loose cubic yards
- **Cutting width:** 119 inches
- **Speed:** 32 mph fully loaded

## PROGRAM STATUS

- **FY16-FY18:** Fielded and Trained 154 scrapers and operators

## PROJECTED ACTIVITIES

- **FY19-FY20:** Continued Fielding and Training of 621G Scrapers
- **4QFY20:** Contract complete

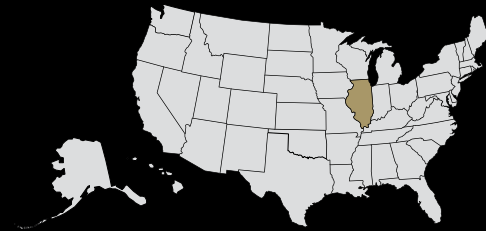
# Scraper — 621G

## FOREIGN MILITARY SALES

Afghanistan and Iraq

## CONTRACTORS

Caterpillar, Inc. (Peoria, IL)



# Screening Obscuration Module (SOM)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## DESCRIPTION

The Screening Obscuration Module (SOM) will provide a man-portable mountable and dismountable medium-area visual screening obscuration capability for the warfighter. The SOM will increase platform survivability and Soldier protection levels of maneuver forces by degrading enemy forces ability to detect U.S. targets in the visual and near infrared region of the electromagnetic spectrum. The SOM will utilize miniaturized obscuration generator technology to produce an effective visual obscuration cloud to screen against enemy forces. The individual Soldier or team will employ SOM devices on open and complex terrain.

## BENEFIT TO THE SOLDIER

SOM provides a modernized medium-area medium-duration mountable and dismountable visual to near infrared screening capability for maneuver forces.

## SPECIFICATIONS

- Produces an effective screening cloud size of 204 x 12 meters for up to 12 minutes without refueling

## PROGRAM STATUS

- **3QFY17:** Preliminary Design Review
- **4QFY18:** Critical Design Review

## PROJECTED ACTIVITIES

- **FY19-FY23:** Development, Production and Deployment
- **FY20:** Milestone C - Production and Deployment

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

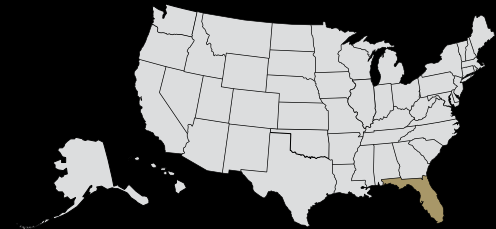
# SOM

## FOREIGN MILITARY SALES

None

## CONTRACTORS

L3 Technologies (Melbourne, FL)



# Small Arms – Crew Served Weapons (CSW)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M249 Squad Automatic Weapon is designed as the fire team automatic weapon providing suppressive fire at extended ranges, allowing fire and movement to make contact with and destroy the enemy.

The M240B and 240L 7.62 mm Medium Machine Guns are designed to provide the platoon with accurate, continuous fires to suppress the enemy and allow maneuver to close with and destroy the enemy.

The M2A1 with Quick Change Barrel is an enhancement to the M2 .50 Caliber Machine Gun offering Soldiers increased performance as well as new features and design improvements that make it easier and safer to use. The M2A1 provides a fixed headspace and timing configuration, flash hider and removable carrying handle, which increase the performance of the battle-proven M2. It mounts on the M205 tripod and on most vehicles while also serving as an anti-personnel and anti-aircraft weapon. It is capable of single-shot and automatic fire, can defeat lightly armored vehicles and provides indirect fires from defilade position.

The MK19 Grenade Machine Gun supports the Soldier by delivering heavy, accurate and continuous firepower against enemy personnel and lightly armored vehicles. The MK19 can be mounted on a tripod or on multiple vehicle platforms and is the primary suppression weapon for combat support and combat service support units.

## BENEFIT TO THE SOLDIER

The M249 allows the warfighter improved weapon control, egress and maneuver in close-quarter combat due to a collapsible buttstock and a new, short barrel. An improved bipod provides Soldiers with increased reliability and weapon

accuracy. The M240L is a lightweight variant of the M240B Machine Gun and reduces the Soldier's combat load while allowing easier handling and movement. The M2A1 speeds target engagement and improves survivability and safety by reducing the time required to change the barrel and eliminating the timely procedure of setting headspace and timing. The MK19 supports the warfighter in both the offense and defense by providing the unit the capability of laying down a heavy volume of close, accurate and continuous 40 mm grenade fire.

## PROGRAM STATUS

- **FY16-FY18:**
  - **M249:** In Sustainment, Army Acquisition Objective (AAO) met
  - **M240B:** In Sustainment, AAO met
  - **M240L:** Through FY18, issued 9,154 240L
  - **MK19:**
    - In Sustainment, AAO met
    - Supporting FMS requirements
- **M2/M2A1:**
  - **2QFY17:** Competitively awarded two contracts for M2/M2A1 procurement for all services and Foreign Military Sales (FMS)
  - **3QFY18:** Issued 32,265 M2A1s

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - **M249:** Modification (MOD) kit under development to enhance performance, reliability and durability
  - **M240B/M240L:**
    - Continue Fielding to National Guard and Reserve units
    - Conducting engineering study to improve barrel design to increase performance



- **M2/M2A1:**
  - Introducing a MOD kit which improves reliability, rate of fire, range and accuracy
  - Will introduce improved optics and fire control system

## SPECIFICATIONS

	M249	M240	M2/M2A1	MK19
Length	30.75 inches -36.25 inches	44.5 inches	67.75 inches	43.1 inches
Weight	17.95 pounds	27.3 pounds (B), 21.8 pounds (L), 5.5 pounds (barrel)	86 pounds (barrel 26 pounds)	77.6 pounds
Caliber	5.56, maximum effective range 800 meters (area), 600 meters (point)	7.62, maximum effective range 800 meters (bipod), 1,800 meters (tripod)	12.7 mm (North Atlantic Treaty Organization), maximum effective range 1,829 meters; maximum range 6,764 meters	40 mm, maximum effective range 2,212 meters (area), 1,500 meters (point)
Range	700-850	550-650	450-600	325-375



## Small Arms – CSW

### FOREIGN MILITARY SALES

**M249:** Afghanistan, Iraq and Pakistan

**M240B:** Afghanistan, Barbados, Belize, Brazil, Columbia, Iraq, Jordan, Kenya, Morocco, Philippines, Tunisia and Yemen

**M240L:** Contracts through FN Herstal and Belgium

**M2/M2A1:** Afghanistan, Egypt, Georgia, Iraq, Jordan, Kenya, Kuwait, Lebanon, Morocco, Pakistan, Tunisia and Uganda

**MK19:** Afghanistan, Iraq, Lebanon, Mexico, Pakistan, Saudi Arabia and Tunisia

### CONTRACTORS

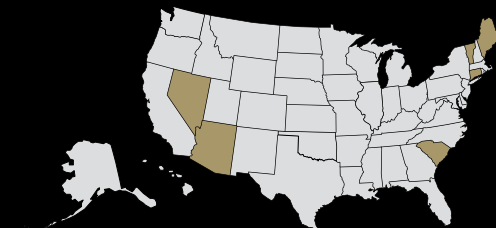
**M249:** FN America, LLC (Columbia, SC)

**M240B:** Fabrique National Manufacturing, LLC (Columbia, SC) Colt Defense, LLC (West Hartford, CT)

**M240L:** Fabrique National Manufacturing, LLC (Columbia, SC)

**M2/M2A1:** General Dynamics Ordnance and Tactical Systems (Williston, VT; Saco, ME); US Ordnance (McCarran, NV)

**MK19:** General Dynamics Ordnance and Tactical Systems (Saco, ME); Alliant Techsystems (Mesa, AZ); Fabrique National Manufacturing, LLC (Columbia, SC)



# Soldier Protection System (SPS)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Soldier Protection System (SPS) is the Army's next-generation Personal Protective Equipment (PPE) system. SPS is a modular, scalable, tailorable system designed to defeat current threats at a reduced weight in comparison to the Army's existing PPE. The SPS is based on the parallel development of five subsystems.

The Vital Torso Protection (VTP) variants include lighter weight Enhanced Small Arm Protective Inserts/Enhanced Side Ballistic Inserts (ESAPI/ESBI), as well as the X Threat Small Arms Protective Inserts (XSAPI) and X Threat Side Ballistic Inserts (XSBI) for deployers.

The Torso and Extremity Protection (TEP) is further comprised of multiple components, including the Modular Scalable Vest (MSV), the Ballistic Combat Shirt (BCS), the Blast Pelvic Protector (BPP) and Ballistic Battle Belt (B3).

The Integrated Head Protection System (IHPS) will include a 5 percent lighter weight helmet system composed of helmet/maxillofacial and passive hearing protection with increased blunt impact performance.

The Transition Combat Eye Protection (TCEP) will include ballistic protective eyewear capable of transitioning from light to dark and dark to light in less than one second, providing a 10 percent increase in fragmentation. This capability aids Soldiers in a combat environment to move rapidly in varying light conditions.

## BENEFIT TO THE SOLDIER

SPS increases the warfighter's lethality, mobility and modularity by optimizing Soldier protection while effectively reducing weight with the latest technologies and managing all life cycle

aspects of personal protective equipment. SPS replaces the capability of multiple current systems to provide the Soldier with an overall 10 percent weight reduction. SPS provides the Soldier with multiple levels of ballistic protection tailorable to a broad range of missions. This modular, scalable approach increases Soldier survivability and mobility and contributes to increased force protection.

## SPECIFICATIONS

- VTP achieves 7-14 percent weight reduction over the current plates
  - ESAPI and XSAPI sizes: XS, S, S-Long, M, L and XL. Two additional sizes are in development XS-Short and S-Short to accommodate smaller-statured Soldiers.
  - ESBI and XSBI sizes: Small 6x6 inches, Medium 6x8 inches and Large 7x8 inches
  - Weight (Medium size): ESAPI = 5 pounds (7 percent reduction); ESBI = 1.99 pounds (9 percent reduction); XSAPI = 5.5 pounds (7 percent reduction); XSBI = 2.20 pounds (14 percent reduction)
- TEP achieves 18.98 percent weight reduction over current soft armor vest/plate carrier
  - Number of sizes: MSV= 8; BCS = 10; BPP = 6; B3 = 3
  - Weight (Medium size): MSV GEN II = 7.6 pounds; BCS = 2.95 pounds; BPP = 1.6 pounds; B3 = 1.7 pounds
- IHPS provides Soldiers Threat M protection and, with a ballistic applique, has the capability to adapt to Threat P rifle protection, the most prevalent threat in theater. Each of the IHPS components has a separate purchase description: Modular Helmet, Ballistic Appliqué Visor, Mandible, Helmet Cover and Retention System

## PROGRAM STATUS

- **1QFY17:**
  - IHPS Milestone C, entering Production

- TCEP Milestone C, entering Production
- **2QFY17:** Integrated Soldier Sensor System Milestone C, entering Production and Fielding
- **4QFY17:** IHPS Low Rate Initial Production (LRIP) Award
- **2QFY18:** IHPS LRIP first lot delivery
- **3QFY18:** TEP B3 Award
- **4QFY18:**
  - TEP MSV Justification and Approval (J&A)
  - TEP BPP J&A
  - TEP Load Distribution System/B3 J&A

### PROJECTED ACTIVITIES

- **1QFY19:**
  - Award E and X Torso and Side Ballistic Insert First Article Test contracts
  - TCEP Long Term Durability Study
  - TCEP LRIP Delivery
  - TCEP Authorized Protective Eyewear List Addition
- **2QFY19:**
  - TEP Acquisition Plan Approval
  - TEP BCS Follow-on Production Award

- **4QFY19:**
  - TEP MSV Follow-on Production Award
  - TEP Improved Outer Tactical Vest repurposing
- **2QFY20:** TEP B3 Follow-on Production Award
- **4QFY20:**
  - TEP BPP Follow-on Production Award
  - Next Generation (NG) IHPS
- **2QFY19:** NG IHPS Full Rate Production (FRP) decision
- **3QFY19:** NG IHPS FRP solicitation
- **1QFY20:**
  - NG IHPS FRP Contract Award
  - NG IHPS FRP Production Readiness Review
- **3QFY20:** NG IHPS FRP First Article Test complete
- **2QFY21:** NG IHPS FRP lot deliveries start



## SPS

### FOREIGN MILITARY SALES

None

### CONTRACTORS

#### Engineering & Manufacturing Development

#### Contractors:

**IHPS:** Ceradyne, Inc. (Costa Mesa, CA), Gentex Corp. (Carbondale, PA), Revision Military Ltd. (Essex Junction, VT)

**TCEP:** AlphaMicron (Kent, OH)

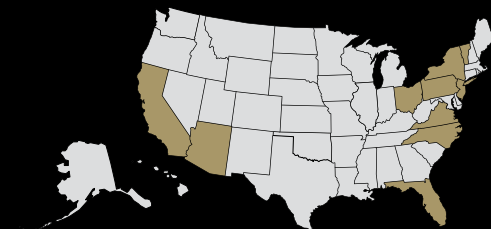
#### Low Rate Initial Production Contractors:

**VTP:** BAE Systems (Phoenix, AZ), Ceradyne (Irvine, CA)

#### Full Rate Production Contractors:

#### TEP:

- **MSV:** Bethel Industries (Jersey City, NJ), Hawk Protection (Pembroke Pines, FL), KDH Defense Systems (Eden, NC)
- **BCS:** Carter Enterprises, LLC (Brooklyn, NY), Point Blank Protective Apparel and Uniforms (Pompano Beach, FL), Eagle Industries (Virginia Beach, VA)
- **BPP:** Bethel Industries (Jersey City, NJ), Hawk Protection (Pembroke Pines, FL), KDH Defense Systems (Eden, NC)
- **B3:** Carter Enterprises, LLC (Brooklyn, NY)



# Test Equipment Modernization (TEMOD)

PEO Combat Support and Combat Service Support | Detroit Arsenal, MI



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis  
 Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Test Equipment Modernization (TEMOD) program replaces obsolete General Purpose Electronic Test Equipment with new state-of-the-art equipment. This new equipment reduces the proliferation of test equipment, modernizes the Army's current existing inventory and strongly supports other weapon systems. Acquisitions are commercial items that have significant impact on readiness, power projection, safety and training operations of the Army, Army Reserve and National Guard. The TEMOD program has procured 38 products that replace more than 334 models.

## BENEFIT TO THE SOLDIER

TEMOD improves the readiness of Army weapon systems; minimizes test, measurement and diagnostic equipment proliferation and obsolescence; and reduces operations and support costs.

## SPECIFICATIONS

- Equipment includes:
  - **Oscilloscope, Bench Top (OS-305/U):** High sampling rate bench top digital oscilloscope with a frequency range of DC to 1 GHz
  - **Radar Test Set Identification Friend-or-Foe (IFF) Upgrade Kit and Radar Test Set with Mode S Enhanced and Mode 5 Cryptography (TS-4530A/UPM):** Personnel use this equipment to perform pre-flight checks on aviation and missile transponders and interrogators to alleviate potential fratricide concerns
  - **Multimeter (AN/GSM-437):** Enables quick, reliable troubleshooting that positively affects operational availability
  - **Radio Test Set (AN/PRM-36):** Diagnoses the condition of various radios in the field

- **Oscilloscope (OS-307/U):** Handheld portable oscilloscope with a frequency range of DC to 200 MHz
- **Telecommunication System Test Set (TS-4544/U):** Measures and displays information related to digital transmissions
- **Radio Frequency Power Test Set (TS-4548/P):** Power meter for troubleshooting and repair of electronics that emit radio frequency radiation
- **Future TEMOD Projects:** Upcoming TEMOD equipment includes an Optical Time Domain Reflectometer, the TS-4558/U, which will include an optical power meter for testing of fiber-optic cables; a Spectrum Analyzer, the CM-523/U, measures frequency up to 26.5 GHz; and a Radio Test Set, the TS-4549/T, will test and troubleshoot Army Radios

## PROGRAM STATUS

- **4QFY18:** Contract award for the Radio Frequency Power Test Set, the TS-4548/P, Oscilloscopes, the OS-305 (bench), the OS-307 (handheld) and Telecommunications Test Set the TS-4544/P

## PROJECTED ACTIVITIES

- **2QFY19:** Logistics Demonstration for the Radio Frequency Power Test Set, the TS-4548/P, Oscilloscopes, the OS-305 (bench), the OS-307 (handheld) and Telecommunications Test Set, the TS-4544/P
- **4QFY19:** Optical Time Domain Reflectometer, the TS-4558/U, Invitation for Bid Issued; Radio Test Set, TS-4549/T (bench), Contract Award
- **2QFY20:** Optical Time Domain Reflectometer, the TS-4558/U, Contract Award

# TEMOD

## FOREIGN MILITARY SALES

**IFF Radar Test Set Mode S (Enhanced) Mode 5:**  
Australia, Croatia, Greece, Jordan, Korea,  
Netherlands, Qatar, Saudi Arabia, Slovakia, Taiwan  
and United Kingdom

## CONTRACTORS

**High Frequency Signal Generator:** Keysight  
Technologies, Inc. (Englewood, CO)

**IFF Radar Test Set Mode S (Enhanced) Mode 5:**  
Tel-Instrument Electronics Corp. (East Rutherford, NJ)

**Multimeter:** Fluke Corp. (Everett, WA)

**Radio Test Set:** Leonardo DRS (St. Louis, MO)

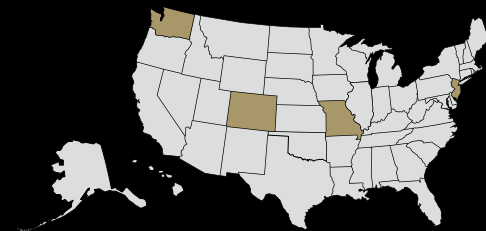
**Telecommunication System Test Set:** TBD

**Oscilloscope (bench-top):** TBD

**Oscilloscope (portable):** TBD

**Radio Frequency Power Test Set:** TBD

**Optical Time Domain Reflectometer:** TBD



AN/GSM-437



AN/PRM-36



TS-4530A



TS-4549



OS-305



OS-307



TS-4544



TS-4548



TS-4558



CM-523

# Transportable Tactical Command Communications (T2C2)

PEO Command, Control, Communications–Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Transportable Tactical Command Communications (T2C2) provides expeditionary robust voice and data communications in the early phases of joint operations and in later operational phases at the tactical edge. The air-droppable T2C2 Lite and T2C2 Heavy high-bandwidth satellite terminals enables early entry forces access, via satellite, to the Army's tactical network to obtain the situational awareness and mission command capabilities needed to conduct entry operations and set the stage for follow-on force. In more mature operations T2C2 Heavy provides high-bandwidth tactical network extension to company level and small forward operating bases and T2C2 Lite supports special teams in austere locations with high-bandwidth requirements.

## BENEFIT TO THE SOLDIER

T2C2 provides satellite capability to small detachments and teams operating in remote locations without network infrastructure, enabling them to securely relay critical and time sensitive information, increasing the situational awareness for the entire operation. By taking advantage of military satellite capability, the system greatly increases throughput over currently fielded capability. Because the T2C2 solution is inflatable, it can provide a larger dish size, with increased capability and bandwidth efficiency, in a smaller transport package. These highly expeditionary inflatable satellite antennas provide the commander with increased operational flexibility and speed in maneuver.

## SPECIFICATIONS

- **T2C2 Lite (V1):**
  - Man-portable (carried by one Soldier)
  - Sets up rapidly; can be on the air in less than 10 minutes

- Will support military Ka and X bands and commercial Ku-band capability for integration into the Tactical Network Transport

### • T2C2 Heavy (V2):

- Will leverage capabilities based on Secure Internet Protocol Router Network/Non-Secure Internet Protocol Router Access Point terminal solution
- Will support company-sized elements and small forward operating bases
- V2 will support military Ka and X bands and commercial Ku-band for integration into the Tactical Network Transport

## PROGRAM STATUS

- **1QFY16:** Milestone C Decision
- **2QFY18:**
  - Full Rate Production Decision
  - Began Fielding Low Rate Initial Production quantities

## PROJECTED ACTIVITIES

- **FY18-FY23:**
  - Fielding to Basis of Issue
  - Begin Fielding Tri-Band terminals in FY19

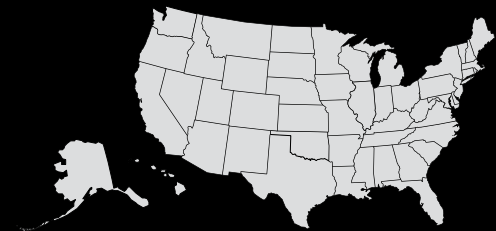
# T2C2

**FOREIGN MILITARY SALES**

None

**CONTRACTORS**

TBD



# Unified Command Suite (UCS)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Unified Command Suite (UCS) vehicle is a self-contained, stand-alone, C-130-air-mobile communications platform that provides both voice and data communications capabilities to Civil Support Team (CST) commanders.

The UCS consists of a combination of commercial and existing government off-the-shelf communications equipment (both secure and non-secure data) to provide the full range of communications necessary to support the CST mission. It is the primary means of reachback communications for the Analytical Laboratory System and acts as a command-and-control hub to deliver a common operational picture for planning and fulfilling an incident response.

## BENEFIT TO THE SOLDIER

UCS gives the warfighter communications interoperability with federal, state, local and military emergency response elements at an incident scene. It also provides reachback capability, which allows incident commanders the ability to assess an incident scene, advise responders and facilitate access to Department of Defense information.

## SPECIFICATIONS

- Digital voice and data over satellite network
- Secure Internet Protocol Router Network and Non-Secure Internet Protocol Router Network
- Radio remote and intercom with cross-banding
- Over-the-horizon communication interoperable interface with state emergency management and other military units

## PROGRAM STATUS

### FY16-FY18:

- Modernization of communication-on-the-move system, radio cross-banding system and secondary reachback system
- Platform integration and modernization
- Undergoing a modernization effort (Block 2 upgrades)

### PROJECTED ACTIVITIES

- **FY19-FY23:** Continue capability upgrades to prevent Commercial Off-The-Shelf obsolescence and improve performance



# UCS

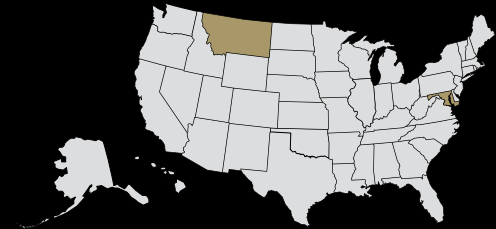
## FOREIGN MILITARY SALES

None

## CONTRACTORS

**UCS Vehicle:** Nomad GCS (Columbia Falls, MT)

**UCS Communications System Integrator:** Naval Air Warfare Center Aircraft Division (Patuxent River, MD)







# WEAPON SYSTEMS **ACAT IV**

Listed in alphabetical order

# Call For Fire Trainer (CFFT) Immersive System

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Call For Fire Trainer (CFFT) Immersive System is designed to provide realistic training in support of all indirect fire and close air support mission tasks at the Fires Center of Excellence, Fort Sill, Oklahoma.

The CFFT Immersive System augments the existing training capability of the base CFFT III system by training Soldiers in advanced mission scenarios and delivery of fires using an immersive, interactive, virtual training environment. The CFFT Immersive System is a collection of eight modules that realistically replicate three different environments.

## BENEFIT TO THE SOLDIER

The CFFT Immersive System supports ground combat readiness by providing a highly realistic training environment for advanced training in calls for fire and close air support for Fire Support Specialists, Joint Fires Observers and other Soldiers. While each module can be used individually, the use of the total system in a collaborative training scenario provides a methodology for training units in advanced procedures and scenarios.

## SPECIFICATIONS

- Four Adaptive Full Spectrum Modules for outdoor and rural scenarios
- Two Close Air Support Modules for close air support techniques
- Two Urban Terrain Modules for generic and urban terrain scenarios

## PROGRAM STATUS

- **4QFY15-4QFY18:** Technical refresh of the Immersive System

## PROJECTED ACTIVITIES

- **2QFY19:** Complete Technical Refresh of the Immersive System
- **4QFY19:** Transition to Sustainment

# CFFT Immersive System

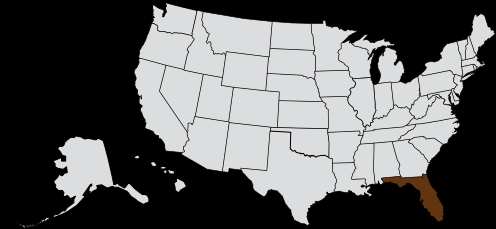
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Nova Technologies (Panama City, FL; Orlando, FL)

TJ, Inc. (Christmas, FL)



# Call For Fire Trainer, Increment III (CFFT III)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

### Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

### Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Call For Fire Trainer (CFFT) III family of systems provides institutional and rapidly deployable observed fire training for Fire Support Specialists, Joint Fires Observers (JFO) and other Soldiers. The system provides training to conduct Indirect Fires, Precision Targeting, Close Air Support, Close Combat Attack (deliberate and hasty attack), and Naval Surface Fire Support. CFFT III provides the capability for Army, joint, multinational and Special Operations Forces to conduct advanced, complex and realistic fires training.

## BENEFIT TO THE SOLDIER

CFFT III provides Forward Observers, JFOs and all Soldiers with training in the methodology for calling for indirect fires and close air support as force equalizers. CFFT III is a critical training enabler to support Soldiers in applying precision targeting to prevent fratricide and minimize collateral damage.

## SPECIFICATIONS

- Two Basic Configurations:
  - Classroom: One instructor to 30 students
  - Transportable: One instructor to four students, and one instructor to 12 students
- CFFT III with Joint Close Air Support Modification Kit will substitute for two Live Type I, II and III Day/Laser Close Air Support calls for Joint Terminal Attack Controller sustainment
- Operates in stand-alone mode as well as network capable
- Supports classified training up to the Secret level
- Simulated Military Equipment includes:
  - Advanced Field Artillery Tactical Data System
  - Pocket-sized Forward Entry Device
- Provides virtual terrain databases including Fort Sill, Oklahoma, the National Training Center, Afghanistan and Korea

- Modular-system architecture allows for integration with other simulation systems

## PROGRAM STATUS

- **1QFY16:** Bold Quest 15.2 – Test interoperability with Joint Fires Simulators
- **4QFY15-FY18:** Technical refresh of the Classroom and Transportable Systems

## PROJECTED ACTIVITIES

- **1QFY19:** Technical refresh of the Classroom and Transportable Systems
- **4QFY19:** Transition to Sustainment

# CFFT III

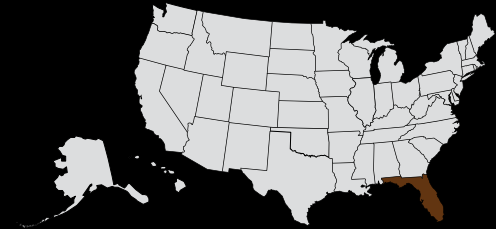
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Nova Technologies (Panama City, FL; Orlando, FL)

TJ, Inc. (Christmas, FL)



# Combat Trauma and Acute Rehabilitation (CTAR)

U.S. Army Medical Research and Materiel Command | Fort Detrick, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Materiel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Combat Trauma and Acute Rehabilitation (CTAR) includes innovative Food and Drug Administration (FDA) approved diagnostic and therapeutic products to address unique and sometimes catastrophic injuries sustained by warfighters. These solutions help treat and sustain warfighter readiness and lethality. The portfolio includes:

- **Burn Conversion Prevention Product**  
Point-of-injury product to limit the severity of severe, life-threatening burns, which account for up to 20 percent of combat casualties. The product speeds healing and reduces hospitalization time, minimizes disfigurement and disability and expedites return to duty.
- **Extracorporeal Life Support**  
A portable device to support lung and kidney function after severe injuries. Approximately 30 percent of critically injured Soldiers experience severe lung and kidney injuries.
- **Extremity Injury Repair – Vascular**  
An engineered material that restores blood flow to injured limbs, facilitating reestablishment of limb function, and reduces the need for amputation. Current methods to repair blood flow using veins or arteries from other parts of the body are often not possible for wounded Soldiers, as injuries typically extend to multiple body parts.
- **Intrathoracic Pressure Regulation Therapy (IPRT)**  
The IPRT helps pull blood into the heart, increasing circulation and improving blood pressure in patients who need assistance breathing or whose organs are not receiving enough blood due to injury. This has potential to decrease shock, reduce secondary injury to organs and improve survival.

## • Temporary Corneal Repair (TCR)

A product to temporarily close open-eye injuries. If untreated within approximately 48 hours of injury, this type of wound causes eyes to be completely non-recoverable. The TCR stabilizes the injured eye so it can be repaired. Combat eye injuries remain a significant cause of disability among warfighters, despite the use of combat eye protection.

## • Burn Resuscitation Decision Support System – Mobile (BRDSS-M)

The BRDSS-M is a device to assist the medical professional in providing the right amount of fluid to severely burned casualties. The system has successfully achieved a Full Rate Production Decision.

## BENEFIT TO THE SOLDIER

CTAR products save lives, limbs, and vision in combat-wounded Soldiers, speed recovery, improve quality of life, make return to duty possible and reduce the need for future chronic treatment.

## SPECIFICATIONS

- FDA licensure
- Each medical product has individual technical and logistics (maintenance and consumable resupply) specifications

## PROGRAM STATUS

- **FY16-FY18:**
  - CTAR products in varying stages of maturity; activities range from laboratory studies to human studies and FDA clearance
  - Two programs achieved Milestone A; one achieved Milestone C



## PROJECTED ACTIVITIES

- **FY19-FY23:** CTAR products will remain in varying stages as activities range from laboratory studies to FDA approval

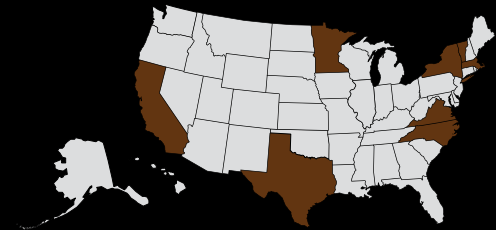
# CTAR

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Arcos Medical, Inc. (Missouri City, TX)  
ChromoLogic, LLC (Monrovia, CA)  
Humacyte, Inc. (Morrisville, NC)  
Human Biomed Inc. (South Burlington, VT)  
Luna Innovations Inc. (Roanoke, VA)  
Neomatrix Therapeutics (Stony Brook, NY)  
Triton Systems (Chelmsford, MA)  
ZOLL (Minneapolis, MN)



# Communications Security (COMSEC)

PEO Command, Control, Communications – Tactical | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

Communications Security (COMSEC) develops, tests, procures, fields and sustains cryptographic solutions to secure the Army's network (tactical up through enterprise). New and emerging architectures, and Department of Defense and Army policy are driving the need to replace the current inventory with technologically advanced, network-centric, global-information-compliant devices. The new devices will incorporate Chairman of the Joint Chiefs of Staff and Joint Requirements Oversight Council-directed cryptographic standardization, Key Management Infrastructure and network-centric performance capabilities.

## BENEFIT TO THE SOLDIER

COMSEC enables the Army to equip the force with critical cryptographic solutions and services during peacetime, wartime and contingency operations.

## SPECIFICATIONS

- Inline Network Encryptor Family: Encryption systems provide secure data and voice communications over Internet Protocol (IP) networks
- Link and Trunk Encryptor Family: Encryption systems provide secure data and voice communication over point-to-point wideband data links
- Secure Voice Family: Encryption systems provide secure voice and limited data communications over unsecured IP and public-switched telephone networks
- Inline Media Encryptor Family: Encryption systems provide secure data encryption capabilities for data at rest
- Embedded Cryptographic Modernization Initiative: Retrofit of existing systems with embedded cryptographic capability ensures that they will be able to accept and utilize modern keying material; commercial solutions for classified

commercially available products that when used together in a layered fashion are approved by the National Security Agency for protecting classified information

## PROGRAM STATUS

- **FY16-FY17:** Continued Procurement and Fielding of COMSEC Encryption Modernization Hardware
- **1QFY17:**
  - Embedded COMSEC Modernization Production Request for Proposal (RFP)
  - KOV-21 Replacement Cryptographic Card Production and Support Services RFP

## PROJECTED ACTIVITIES

- **FY19:** Next Generation Load Device Development
- **FY20:**
  - Embedded Crypto Modernization Initiative Production Decision
  - Army Key Management Infrastructure Small Contract Award

# COMSEC

## FOREIGN MILITARY SALES

None

## CONTRACTORS

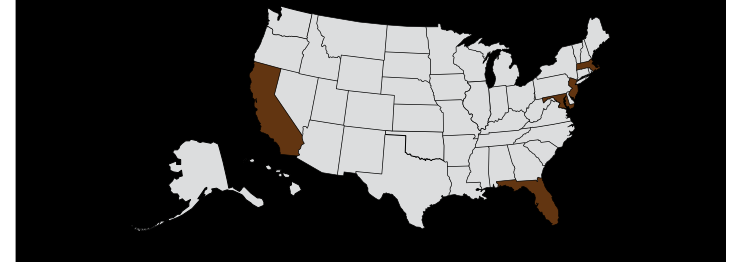
General Dynamics Mission Systems (Needham, MA)

Harris (Palm Bay, FL)

L3 Communication Systems (Camden, NJ)

SafeNet (Columbia, MD)

Viasat (Carlsbad, CA)



# Engagement Skills Trainer (EST) II

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Engagement Skills Trainer (EST) II is designed to simulate live weapon training events that directly support individual and crew-served weapons qualification, including individual marksmanship, small unit collective and judgmental escalation-of-force exercises in a controlled environment. It provides detailed feedback to the individual fire team/squad that covers the fundamentals of marksmanship, fire control and distribution of fires.

The EST II simulator provides enhanced diagnostics with intelligent Automatic Coaching and Virtual Battle Space 3 based collective training enabled by the system's open architecture. The EST II provides an impressive array of functionality for both instructor and trainee: solid weapon handling and shot placement analytics, coaching tools that highlight trainee results in real-time for reinforcement of correction, and enhanced graphic capabilities for an immersive training platform.

The EST II marksmanship qualification standards and collective scenarios are validated by the U.S. Army Training and Doctrine Command.

## BENEFIT TO THE SOLDIER

EST II simulates weapons training events that lead to live-fire qualifications for individual or crew-served weapons. EST II provides weapons training in a controlled environment that reduces range/live-fire fees and provides the Soldier with more trigger time. Units utilize EST II to improve and excel at marksmanship skills, which improve performance during live-fire training and on the battlefield.

## SPECIFICATIONS

- Multilane (5, 10 or 15 Soldiers)
- Instructor/Operator Station System with tablet, compressor, speakers, projector, weapons interface box, screen and printer
- Small arms (pistol, rifle, carbine and grenade launcher) simulators
- Medium, crew-served weapons (M240B and M249 Semi-Automatic Weapon (SAW)) simulators
- Shoulder-fired munition (AT4 and M141 Bunker Defeat Munition) simulators
- Heavy machine gun (M2 and MK-19) simulators
- Simulator in Development: PAS-13 Thermal Weapon Site, M145MGO

## PROGRAM STATUS

- **3QFY16:** Prototype evaluation
- **4QFY16-4QFY18:** Technical Refresh to EST II systems
- **4QFY18:** Initial Fielding of tetherless simulated M4A1 rifles

## PROJECTED ACTIVITIES

- **1QFY19:** Continuing Technical Refresh to EST II systems
- **FY19:** Initial Fielding of tetherless simulated M249 SAW

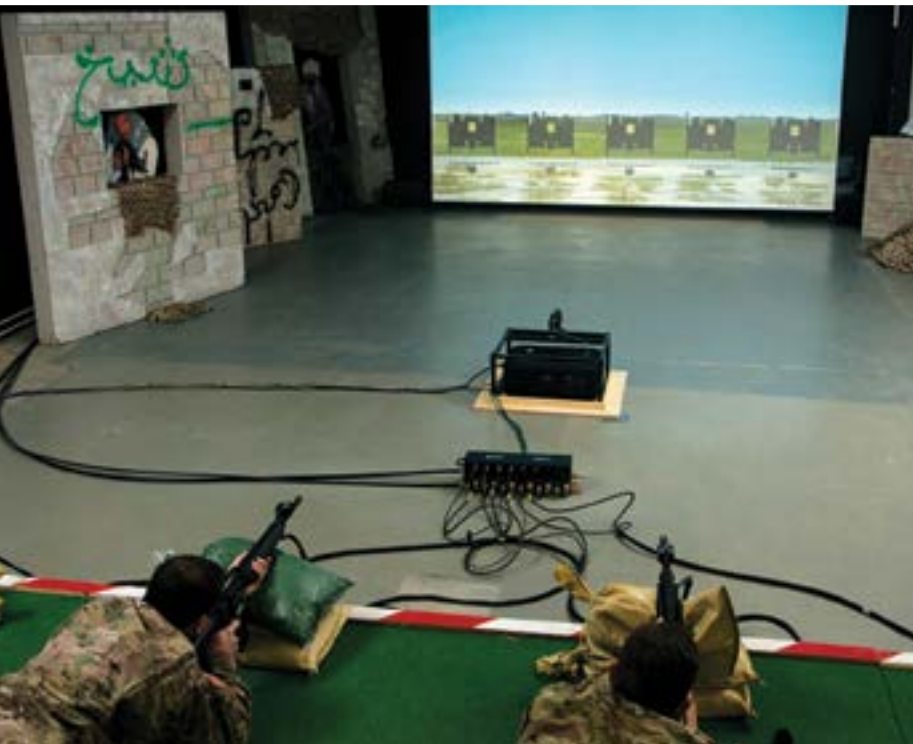
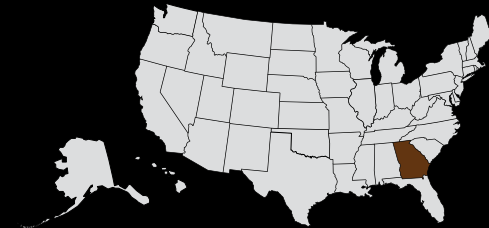
## EST II

### FOREIGN MILITARY SALES

None

### CONTRACTORS

Meggitt Training Systems (Suwanee, GA)



# Family of Weapon Sights — Individual (FWS-I)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Family of Weapon Sights — Individual (FWS-I) mounts to the M4 Carbine and M249 Squad Automatic Weapon and provides the Soldier with infrared (thermal) imagery in all weather conditions, under all lighting conditions and through obscurants.

## BENEFIT TO THE SOLDIER

FWS-I's thermal sensor gives Soldiers the ability to see through fog, dust and smoke, giving an advantage both day and night. Additionally, FWS-I wirelessly transmits the weapon sight crosshair and thermal imagery to the Enhanced Night Vision Goggle (ENVG) III and ENVG-Binocular, providing a Rapid Target Acquisition (RTA) capability. RTA enables Soldiers to detect, recognize and engage targets accurately from any carry position and with significantly reduced exposure to enemy fire.

## SPECIFICATIONS

- Man-sized target recognition at night: 70 percent probability at 960 meters (threshold) and 1,200 meters (objective)
- Man-sized target recognition through smoke or other obscurants: 90 percent probability at 300 meters (threshold) and 480 meters (objective)
- Total system weight: Less than or equal to 2 pounds (threshold) and 1.5 pounds (objective)
- Field-of-view: Greater than or equal to 18 degrees

## PROGRAM STATUS

- **4QFY17:**
  - Low Rate Initial Production Delivery Order 2
  - Justification and Approval approved
- **3QFY18:**
  - Completed Initial Operational Test and Evaluation
  - Airborne Limited User Test

## PROJECTED ACTIVITIES

- **1QFY19:** Type Classification-Standard
- **2QFY19:**
  - Full Materiel Release
  - Full Rate Production
- **3QFY19:** First Unit Equipped

# FWS-I

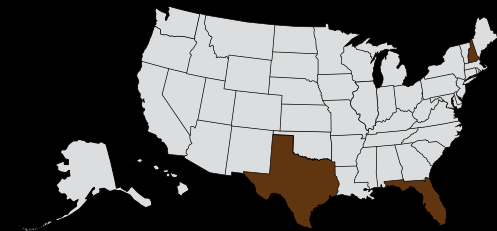
## FOREIGN MILITARY SALES

None

## CONTRACTORS

Leonardo DRS (Melbourne, FL; Dallas, TX)

BAE Systems (Nashua, NH; Austin, TX)



# Family of Weapon Sights — Sniper (FWS-S)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Family of Weapon Sights — Sniper (FWS-S) will mount in-line with a sniper's day optic on the M110, M2010, M107, the Compact Semi-Automatic Sniper System and the Precision Sniper Rifle. The FWS-S will provide the sniper with infrared (thermal) imagery in all weather conditions, through obscurants and under all lighting conditions. The FWS-S will also include a wired remote to adjust focus, a wired capability to the Small Tactical Optical Rifle Mounted (STORM) micro-Laser Rangefinder and a wireless capability to the STORM SLX (smaller, light, more cost-effective).

## BENEFIT TO THE SOLDIER

FWS-S thermal sensor extends lethality for snipers to 1,800 meters, three times longer than the 600 meter capability provided by an image intensified system. The FWS-S will be the first clip-on thermal weapon sight specifically developed and fielded by the Army for the sniper community.

## SPECIFICATIONS

- Man-sized target recognition at night: 70 percent probability at 1,800 meters (threshold) and 2,200 meters (objective)
- Man-sized target recognition through smoke or other obscurants: 90 percent probability at 600 meters (threshold) and 800 meters (objective)
- Total system weight: Less than or equal to 2 pounds (threshold) and 1.75 pounds (objective)
- Field-of-view: Greater than or equal to 4 degrees (threshold) and 9 degrees (objective)

## PROGRAM STATUS

- **2QFY16:** Milestone B, entering Engineering and Manufacturing Development (EMD)
- **3QFY16:** EMD Contract Award

## 2QFY17:

- Critical Design Review
- Testing of EMD prototypes begins

## PROJECTED ACTIVITIES

- **4QFY18:** White Paper Review
- **1QFY19:** Request and review Initiative Proposals
- **2QFY19:** Contract Award for FWS-Sniper EMD effort



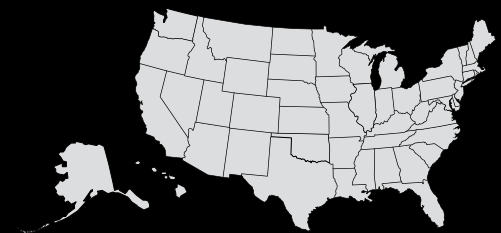
# FWS-S

## FOREIGN MILITARY SALES

None

## CONTRACTORS

TBD



# Homestation Instrumentation Training System (HITS)

PEO Simulation, Training and Instrumentation | Orlando, FL



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Homestation Instrumentation Training System (HITS) is designed to enhance training at home stations by instrumenting force-on-force live-training exercises for battalion-and-below units.

HITS includes automated tools to establish medium fidelity cause-and-effect analysis of battalion-and-below collective training performance in unified land operations. It is an integrated system of computer software and hardware; workstations; databases; voice, video and data recording; production and presentation equipment; interface devices and communication networks. It provides the tools for the observer-controller/trainer and operators to collect, analyze and present training performance feedback in the After Action Review (AAR) and a unit take-home package. HITS is a transportable system that can be rapidly deployed to support field training exercises. It operates at Mission Assurance Category III Sensitive, and produces Controlled Unclassified Information. HITS provides the live domain for Live, Virtual, Constructive-Integrated Training Environment established by the Live, Virtual, Constructive-Integrating Architecture Program. HITS is part of the Live Training Transformation-Family of Training Systems and is based on the Common Training Instrumentation Architecture.

## BENEFIT TO THE SOLDIER

HITS tracks Soldiers and vehicles while collecting their real-time casualty assessment information during battalion level force-on-force collective training exercises. This allows the HITS Exercise Control to monitor and record the participant's position and the results of who shot whom, when, where and with what outcome.

## SPECIFICATIONS

- Provides continuous support 24/7 during training
- Interoperates with up to 1,162 instrumented personnel and vehicles outfitted with the Instrumentable - Multiple Integrated Laser Engagement System
- Battle Manager application allows operators to conduct fire missions and employ minefields and improvised explosive devices, allowing automatic adjudication of casualty and damage effects of these attacks
- Operator monitoring and recording training unit voice transmissions from up to four Single Channel Ground and Airborne Radio System channels
- Captures video that can be edited and embedded to display in an AAR

## PROGRAM STATUS

- **FY12-FY17:** Fielded 15 systems to various home stations
- **FY18-FY20:** HITS Exercise Control updates Version 3 and 4 compatibility
- **FY18:** Begin incorporating HITS Aviation capability to support ground task force exercise across the full range of military operations

## PROJECTED ACTIVITIES

- **3QFY19:** Korea Refresh/Very Small Aperture Terminals Fielding and HITS Aviation Integration
- **FY19-FY21:** Continue incorporating HITS Aviation capability to support ground task force exercise across the full range of military operations.
- **FY21-FY31:** HITS relevancy upgrades – Technology Refreshment to maintain program relevancy and to support home station training



# HITS

## FOREIGN MILITARY SALES

None

## CONTRACTORS

Cubic Global Defense (San Diego, CA)

General Dynamics Mission Systems (Orlando, FL)



# Installation Information Infrastructure Modernization Program (I3MP)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The Installation Information Infrastructure Modernization Program (I3MP) provides core infrastructure to include system and technical facilities, protected distribution systems and site preparation for other support equipment. Critical capabilities provided by I3MP include:

- Modernized outside plant and fiber-optic infrastructure to support strategic network communications, enabling implementation of upgrades to the Army network and facilitating information dominance to the Army warfighter
- Foundational Installation Capability Sets that include data network, outside plant and voice network modernization that support implementation of other Product Manager I3MP capabilities
- Upgraded Network Enterprise Center managed ethernet switches on all Army bases, posts, camps and stations
- Modernized and optimized Army circuits and voice systems, and decommission legacy voice systems
- Life cycle replacement of existing multimedia, transport and network management systems, upgrades existing operational transport systems, and supports expansion of existing transport systems, fiber optic cable and network management systems

## BENEFIT TO THE SOLDIER

I3MP enables the warfighter through information technology, infrastructure modernization and life cycle management of the Army's worldwide Installation Campus Area (voice, video and data) Networks (ICAN). The program standardizes Army installation network architectures, increases network bandwidth/throughput, flattens the network and increases network security.

## SPECIFICATIONS

- Designs are applicable to the specific site per the site's requirements.

## PROGRAM STATUS

- **Current:** I3MP has more than 75 current contracting actions affecting most of the Army's bases, posts, camps and stations, each of which has some form of ICAN for communications
- **FY18:** Base Other Procurement, Army funding line for I3MP was in the \$142 million range

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - Complete/initiate installation infrastructure modernization, switch modernization, enhanced voice capability and circuit optimization projects at selected Continental United States and Outside of the Continental United States Army bases, posts, camps and stations
  - Support relocation of United States Forces Korea and 8th Army to Camp Humphries Upgrade and modernize ICAN throughout Southwest Asia, Europe and Pacific



# I3MP

## FOREIGN MILITARY SALES

None

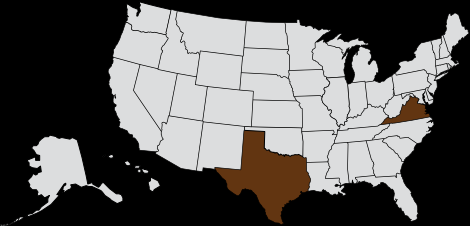
## CONTRACTORS

AT&T (Dallas, TX)

Vision Ability Execution, Inc. (Reston, VA)

General Dynamics (Falls Church, VA)

Siemens (Washington, DC)



# Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS) – M3E1

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
Next Generation Combat Vehicles  
Future Vertical Lift  
Army Network  
Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
Technology Maturation & Risk Reduction  
Engineering & Manufacturing Development  
Production & Deployment

Operations & Support

## DESCRIPTION

The M3E1 Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS) is an 84 mm reloadable, recoilless rifle designed to engage lightly armored targets at ranges out to 500 meters and soft targets out to 800 meters. The M3E1 MAAWS is salt water submersible, jumpable and day/night operable. The M3E1 MAAWS requires a crew of two; one to carry and fire the weapon, and the other to carry the ammunition and load the weapon.

The M3E1 rifle is 14.8 pounds (28 percent lighter) than the M3, contains ergonomic improvements and an automatic rounds counter. The M3E1 rifle is provided with a lightweight (4.2 pounds) electronic fire control system that automatically provides ballistics solutions for static and moving targets.

## BENEFIT TO THE SOLDIER

M3E1 MAAWS is 28 percent lighter than the M3 and contains more ergonomic adjustments. The M3E1 MAAWS contains an integrated Fire Control System with metrology corrected ballistic solutions for engaging moving targets, and greater probability of hitting of static targets. The M3E1 MAAWS electronics allow integration with future MAAWS smart ammunition.

## SPECIFICATIONS

- Length: 1 meter
- Bore: 84 mm
- Weight with Fire Control System: 19 pounds
- Ammunition: Current High Explosive, High Explosive Dual Purpose, Training; Future Illumination, Anti-Structure
- Maximum Range: 1,300 meters
- Fire Control System: Gen3, 1X Reflex, 15 degree field of vision

## PROGRAM STATUS

- **2QFY17:** M3 Type-Classification Standard (TC-STD) completed
- **3QFY18:** M3 Full Materiel Release (FMR) completed

## PROJECTED ACTIVITIES

- **1QFY19:**
  - M3E1 Urgent Materiel Release
  - M3E1 First Unit Equipped (FUE) Army
- **4QFY19:**
  - M3E1 FUE Marine Corps
  - M3E1 Developmental Test begins
- **2QFY21:** M3E1 TC-STD
- **4QFY21:** M3E1 FMR completed

# MAAWS – M3E1

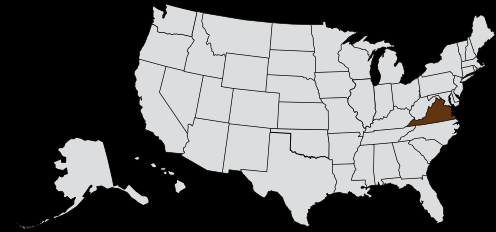
## FOREIGN MILITARY SALES

None

## CONTRACTORS

**M3/M3E1:** Saab Dynamics AB (Sweden)

**FCS13RE Fire Control:** Aimpoint Inc. (Manassas, VA)



# Medical Communications for Combat Casualty Care (MC4)

PEO Enterprise Information Systems | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Material Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

Medical Communications for Combat Casualty Care (MC4) is a ruggedized system-of-systems containing medical software packages fielded to operational medical forces worldwide, providing the tools to digitally record and transfer critical medical data from point of injury to medical treatment facilities worldwide. MC4 relies on software developers such as the Program Executive Office Defense Healthcare Management System (PEO DHMS) to provide global software databases to store data generated by the MC4 system, providing medical situational awareness for operational commanders and patient record visibility to medical staffs worldwide. PEO DHMS currently furnishes Theater Medical Information Program-Joint (TMIP-J) software to MC4 for deployment to operational units.

## BENEFIT TO THE SOLDIER

MC4 systems provide continuity of care from point of injury through roles of care and enable a comprehensive lifelong electronic health record (EHR) for Soldiers resulting in better informed health care providers and easier access to Veterans Affairs medical benefits. MC4 also provides commanders at all levels timely medical situational awareness and unit personnel health status.

## SPECIFICATIONS

TMIP-J applications include:

- In and out patient
- Point-of-injury
- Class VIII (Medical) Logistics
- Blood Inventory Management
- Patient Movement and Tracking
- Medical Surveillance and Situational Awareness

## PROGRAM STATUS

- **1QFY18:** Supported Hurricane Maria relief efforts in Puerto Rico
- **2QFY18:** MC4 v2.3 systems upgrades in 33 countries, 32 states and two U.S. Territories. Systems upgraded: ~2,400
- **1QFY18-2QFY18:**
  - Formal New Equipment Training: ~1,800 Soldiers trained
  - Over-the-Shoulder Training: ~4200
  - Distributed Learning: 370 active students
- **4QFY18:** Windows 10 migration

## PROJECTED ACTIVITIES

- **FY19:**
  - Complete Phase I and II of v2.3 deployment
  - Realign focus to Point-of-Injury solution to address Chief of Staff of the Army's guidance



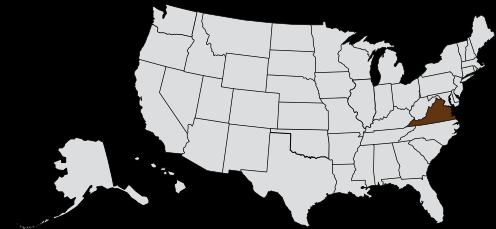
# MC4

## FOREIGN MILITARY SALES

None

## CONTRACTORS

CACI (Arlington, VA)



# Medical Countermeasure Systems (MCS) – Platforms for Rapid Integrated Solutions for Medical Countermeasures (PRISM)

JPEO for Chemical, Biological, Radiological and Nuclear Defense | Aberdeen Proving Ground, MD



## MODERNIZATION PRIORITY

Long-Range Precision Fires  
 Next Generation Combat Vehicles  
 Future Vertical Lift  
 Army Network  
 Air and Missile Defense  
 Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis  
 Technology Maturation & Risk Reduction  
 Engineering & Manufacturing Development  
 Production & Deployment  
 Operations & Support

## DESCRIPTION

The Mission of Medical Countermeasure Systems (MCS) – Platforms for Rapid Integrated Solutions for Medical Countermeasures (PRISM) is to apply proven platform technology to streamline Medical Countermeasure (MCM) delivery to the warfighter by accelerating development to licensure and employ platform technologies to support a rapid response capability to novel and emerging threats. The Advanced Development and Manufacturing of Antibody Technologies (ADAMANT) Monoclonal antibodies (mAb) platform can respond to recognized, emerging and engineered threats, provide interim fielding candidates early in development, and cost effectively bring mAb MCMs from discovery to licensure and fielding.

ADAMANT is being established at the Department of Defense (DOD) Advanced Development and Manufacturing (ADM) Facility. The first product for ADAMANT will be Botulinum toxin prophylactic and therapeutic mAb MCM. The goal is for monoclonal antibodies to be produced for biodefense applications at the DOD ADM, formulated for intramuscular use and lyophilized for cold chain avoidance and stockpiling.

## BENEFIT TO THE SOLDIER

MCS PRISM accelerates MCM delivery to the warfighter through the development and implementation of platform systems. It also adapts a subset of the platform technologies to support a rapid response capability to novel and emerging threats.

## SPECIFICATIONS

- DOD Chemical, Biological Defense Program Planning Guidance for Fiscal Year 2019-2029 Joint Science and Technology Office and JPEO CBRND: continue to develop the PRISM concept through translational teaming and begin establishment of up to three additional platforms. Platforms should have broad applicability across the threat landscape, have mature discovery and design process, be supported by a robust manufacturing process and have demonstrated regulatory success with Food and Drug Administration approval of similar products

## PROGRAM STATUS

- **1QFY18:** ADAMANT Establishment (First Platform): Botulinum neurotoxins (BoNT) serotypes A, B Advanced Technology Demonstration – Stage 3 Technical Scope Approval - current Good Manufacturing Practices manufacturing and stability testing of anti-BoNT A|B drug substance and lyophilized drug product

## PROJECTED ACTIVITIES

- **FY19-FY23:**
  - ADAMANT BoNT A|B Stage 4 Go/No Go Decision
  - ADAMANT Platform Validation (Plague)
  - DNA Vaccine Platform Establishment/Validation
  - Initiate 3rd Platform Technology
  - Establish ADAMANT Rapid Response Capability

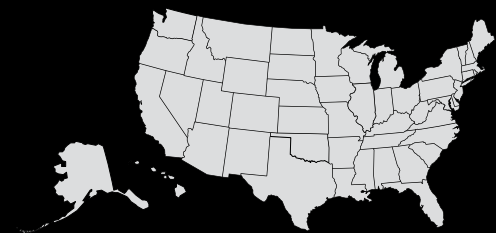
# MCS — PRISM

## FOREIGN MILITARY SALES

None

## CONTRACTORS

N/A



# Small Arms – Individual Weapons (IW)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation & Risk Reduction

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M4 series 5.56 mm Carbine is a compact version of the M16A2 Rifle and is equipped with a collapsible stock, an adaptor rail system and a backup iron sight. The M4A1 is fully automatic and incorporates an ambidextrous fire control selector. The weapon can be mounted with the M203A2 Grenade Launcher, M320A1 Grenade Launcher or the M26 Modular Accessory Shotgun System.

In 2014, the Army decided to update its service rifle inventory from a mix of M16A2/A4 Rifles and M4 Carbines to an inventory of 5.56 mm M4A1 Carbines. The M4 Product Improvement Program (PIP) converts fielded M4s to M4A1s by adding a heavy barrel, a fully automatic capable trigger mechanism and an ambidextrous fire control assembly. Weapons are modified via U.S. Army Tank-automotive and Armaments Command and Anniston Army Depot (ANAD) mission teams using Modification Work Order instructions beginning with pre-built kits assembled at ANAD in Alabama.

The M320/M320A1 Grenade Launcher is a 40 mm grenade-launching weapon system that replaces the M203 series grenade launchers. The system may be operated in stand-alone mode or mounted on M16/M4. The M320 mounts under the M16 series, while the M320A1 mounts under the M4 series. The M320 Grenade Launcher Module (GLM) has an integrated leaf sight and improved safety features. It also has a side-loading unrestricted breech to allow the system to fire longer 40 mm low-velocity projectiles (North Atlantic Treaty Organization standard and nonstandard). The Grenadier Sighting System is a future system component that will provide the ability to quickly and accurately engage targets with the M320 GLM during day or night.

The M17 Modular Handgun System (MHS) is a 9 mm full-sized

semi-automatic handgun. The M18 MHS and the M18 General Officer (GO) handgun are its compact variants. The M17 replaces the M9; the M18 replaces the M11; and the M18 GO pistol replaces the M9 GO pistol. Both the M17 and the M18 can be equipped with either a 21-round magazine or a 17-round magazine. The Squad Designated Marksman Rifle (SDM-R) is a 7.62x51 mm Squad Designated Marksman solution based on the Heckler & Koch G28E-110 Compact Semi-Automatic Sniper System rifle. The rifle is outfitted with the Sig Sauer Tango 6 variable 1x6 power optic.

## BENEFIT TO THE SOLDIER

The M4/M4A1 Carbine enables individuals and small units the ability to engage targets with accurate, lethal, direct fire. The M320 series grenade launcher enables Soldiers and small units the ability to engage targets with lethal grenade fire. The M17 provides increased lethality, terminal effects, ergonomics, reliability, durability and maintainability compared to the current M9 handgun. The SDM-R will provide Infantry, Scout and Engineer squads the capability to engage enemy personnel with accurate rifle fire.

## PROGRAM STATUS

- **FY16-FY18:** M4/M4A1 deliveries from FN LLC and Colt Manufacturing; PIP missions (more than 310,000 conversions completed since the start of the PIP effort in FY14)
- **2QFY16:** M320 Contract Award for Grenadier Sighting System prototypes; M17 solicitation closes
- **2QFY16-4QFY18:** M320 Grenadier Sighting System prototype Development, Test and Evaluation
- **3QFY16:** Capco Inc M320A1 First Article Test completed
- **3QFY16-4QFY16:** M17 Soldier participation (ergonomics and warfighter acceptance)
- **1QFY17:** M320 first delivery; M17 Milestone C; SDMR directed

requirement approved for the Heckler & Koch G28E

- **2QFY17:** M17 Contract Award to Sig Sauer
- **1QFY18:** M17 Conditional Materiel Release approved; first delivery of new handguns to the 101st Airborne Division at Fort Campbell, Kentucky
- **3QFY18-4QFY18:** M17 Production Verification Testing to support Full Rate Production; SDMR Testing to support Safety Confirmation
- **4QFY18:** SDMR Urgent Materiel Release; first fielding to 1/1 Armored Division, Fort Bliss, Texas

### PROJECTED ACTIVITIES

- **FY19-FY20:** M4-to-M4A1 field conversions; M320 Production and Fielding
- **FY19-FY22:** FN Manufacturing LLC and Colt Defense Production for M4/M4A1
- **1QFY19:** M17 Full Materiel Release (FMR)/Full Rate Production
- **1QFY19-2QFY19:** SDMR First Delivery/Fielding
- **4QFY19:** M320 Production award for Grenadier Sighting System
- **1QFY20:** SDMR FMR
- **4QFY20:** M320 Grenadier Sighting System Fielding

### SPECIFICATIONS

	M4/M4A1	M320 Grenade Launcher	MHS	SDM-R
<b>Caliber</b>	5.56 mm	40 mm	9 mm	7.62 mm
<b>Weight</b>	(Weapon, backup irons sight, sling, adapter rail system and empty magazine)  7.46 pounds (M4)  7.74 pounds (M4A1)	3.42 pounds when mounted (empty)  6.48 pounds in the stand-alone mode (empty)	30.8 ounces (M17)  27.6 ounces (M18)	Under 10 pounds without suppressor optics or magazine
<b>Length</b>	30.57 inches (retracted)  33.82 inches (extended)	11.2 inches in stand-alone mode  8.5 inches when under the barrel of an M16 or M4	8.05 inches (M17)  7.25 inches (M18)	37.4 inches without suppressor
<b>Range</b>	500 meters for point target	400 meters (ammo dependent)	35 meters	600 meters

## Small Arms — IW

### FOREIGN MILITARY SALES

**M4/M4A1:** Afghanistan, Columbia, Iraq, Jordan, Lebanon, Oman and others

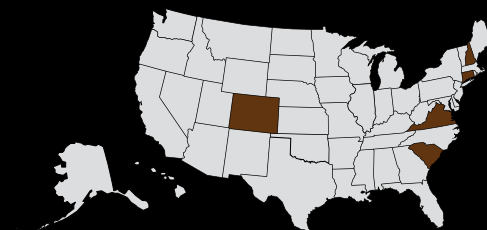
### CONTRACTORS

**M4A1 Carbine:** FN America LLC (Columbia, SC); Colt Defense, LLC (Hartford, CT)

**M320 Grenade Launcher Module:** Capco Inc (Grand Junction, CO)

**MHS:** Sig Sauer Inc. (Newington, NH)

**SDMR:** Heckler and Koch Defense Inc. (Ashburn, VA); Sig Sauer Inc. (Newington, NH)



# Small Arms – Precision Weapons (PW)

PEO Soldier | Fort Belvoir, VA



## MODERNIZATION PRIORITY

Long-Range Precision Fires

Next Generation  
Combat Vehicles

Future Vertical Lift

Army Network

Air and Missile Defense

Soldier Lethality

## ACQUISITION LIFE CYCLE PHASE

Matériel Solution Analysis

Technology Maturation &  
Risk Reduction

Engineering & Manufacturing  
Development

Production & Deployment

Operations & Support

## DESCRIPTION

The M107 Semi-Automatic Long-Range Sniper Rifle fires .50 Caliber ammunition and is capable of delivering precise, rapid fire on targets out to 2,000 meters, greatly exceeding the terminal effect capability of other sniper rifles in use by U.S. forces. Its primary mission is to engage and defeat materiel targets at extended ranges.

The M2010 Enhanced Sniper Rifle is a bolt-action, magazine-fed weapon system that utilizes .300 WinMag ammunition. The rifle is built around a rechambered M24 Sniper Weapon System receiver. The M2010 is equipped with a fully adjustable, right-folding chassis system featuring accessory cable routing channels and Military-Standard 1913 Picatinny rails that mount a Leupold 6.5-20 x 50 mm variable power Day Optic Scope with advanced scalable H-58 ranging and targeting reticle. The M2010 is also equipped with a sound suppressor and adjustable bipod. The shooter interface can be tailored to accommodate a wide range of shooter preferences and its folding stock provides Soldiers flexibility in transporting the weapon during operations.

The M110 7.62 mm Semi-Automatic Sniper System (SASS) is an anti-personnel and light materiel weapon that fires 7.62 mm ammunition out to a maximum effective range of 800 meters. The M110's Leupold Mark IV 3.5–10x scope provides both a wide field of view at low magnification for close-in engagements and a narrow field of view for precision long shots at high magnification. The SASS leverages a rapid fire and rapid reload design, variable-power day optic sight and 10- or 20-round detachable magazines.

## BENEFIT TO THE SOLDIER

The M107 completes missions that cannot be accomplished with current sniper rifles. The ability to engage both personnel and light skinned vehicles at long range provides Soldiers a tremendous tactical advantage. It is especially valuable during military operations in urban terrain where greater firepower and standoff ranges provide counter-sniper capability while enhancing sniper survivability.

The M2010 exceeds the rate of fire and lethality of the M24, the previous medium-caliber sniper rifle with a 50 percent increase in range. It bridges the capability gap between the M110 and the M107, allowing precision engagements in daylight and limited visibility, using a clip-on sniper night sight, out to 1,200 meters. The M110 SASS provides the capability for rapid and focused engagements on several targets with multiple follow-on shots. It is the first Army weapon system that integrates a quick attach and detach suppressor to reduce the weapon's firing signature. The M110 provides the warfighter with increased lethality, situational awareness from an enhanced scope, and survivability from the flash and sound suppressor.

## PROGRAM STATUS

### M107:

- **FY16-FY18:** 2,681 total systems fielded to sniper and Explosive Ordnance Disposal teams

### M2010:

- **FY16-FY18:** Completed Fielding of 2,083 total systems

### M110:

- **FY16-FY18:** Completed Fielding of 2,083 total systems

## PROJECTED ACTIVITIES

### M107:

- FY19-FY23: System in Operation and Sustainment

### M2010:

- FY19-FY23: System in Operation and Sustainment

### M110:

- FY19-FY23: System in Operation and Sustainment
- 4QFY19: Type Classification-Standard

## SPECIFICATIONS

	M107	M2010	M110
Caliber	.50 BMG (12.7 x 99 mm North Atlantic Treaty Organization (NATO))	.30	.308 Win (7.62 x 51 mm NATO)
Weight	30.9 pounds	18.7 pounds	17.3 pounds (with suppressor)
Length	57 inches	52.2 inches	46.5 inches
Range	2,000 meters (materiel) 1,000 meters (personnel)	1,200 meters	800 meters

## Small Arms — PW

### FOREIGN MILITARY SALES

**M107:** Bahrain, Bangladesh, Barbados, Belgium, Benin, Chad, Columbia, Hungary, Kenya, Lebanon, Pakistan, Peru, Philippines, Romania, Slovakia, Thailand and Yemen

**M110:** Bahamas, Belize, Benin, Bhutan, Brazil, Cameroon, Chad, Czech Republic, Hungary, Iraq, Kenya, Latvia, Mexico, Peru, Romania, Senegal, Slovakia, Tunisia and Turkey

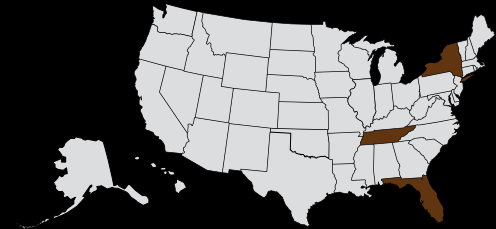
**M2010:** None

### CONTRACTORS

**M107:** Barrett Firearms Manufacturing Inc. (Murfreesboro, TN)

**M2010:** Remington Arms Co. Inc. (Illion, NY)

**M110:** Knight's Armament Co. (Titusville, FL)







# ARMY SCIENCE & TECHNOLOGY OVERVIEW



# Army Science and Technology

**The Army's S&T program invests in fundamental science that will yield decisive advantages in the future.**

The U.S. Army is committed to ensuring that our Soldiers remain the most capable in the world. Building upon this commitment, the Army's Science and Technology (S&T) program focuses on enabling the modernization priorities established by the Secretary of the Army while addressing the full spectrum of existing and emerging threats.

The Army S&T vision is to provide Soldiers with the tools needed to win decisively. The future operational environment will demand land power dominance with increased flexibility, adaptability and speed of responsiveness. To address capability shortfalls and outpace anticipated threats, the Army's S&T program fosters invention, innovation and demonstration of affordable technology solutions. It matures advanced technologies into affordable and sustainable solutions; pursues foundational technology developments and breakthroughs; leverages organic capacity and the capacity of our partners; and invests in fundamental science that will yield decisive advantages in the future.

## ARMY S&T ENTERPRISE

The Army S&T Enterprise is comprised of the Office of the Deputy Assistant Secretary of the Army Research and Technology (DASA R&T) and the five S&T executing commands/agencies. Together, they are responsible for technical leadership, scientific advancement and technological support within the acquisition process.

On behalf of ASA(ALT), DASA R&T has overall responsibility for the planning, programming, budgeting and oversight of the S&T Enterprise.

The five Army S&T commands and agencies that execute the Army's S&T program and investments are:

- U.S. Army Futures Command – Army Research Lab and the Research, Development and Engineering Centers
- U.S. Army Corps of Engineers – Engineer Research and Development Center
- U.S. Army Medical Command – Medical Research and Materiel Command
- U.S. Army Space and Missile Defense Command/Army Forces Strategic Command – Space and Missile Defense Technical Center
- Headquarters, Department of the Army, G-1 – U.S. Army Research Institute for Behavioral and Social Sciences



- Army S&T Enterprise Presence
- U.S. Army Futures Command
- U.S. Army Medical Command
- U.S. Army Corps of Engineers
- U.S. Army Space and Missile Defense Command
- Headquarters, Department of the Army, G-1

## OVERVIEW OF ARMY S&T INVESTMENTS

The Army Modernization Priorities were established in order to regain overmatch and competitive advantage against emerging threats, competitors and adversaries. The Army's S&T investments are aligned to address the Army's top modernization challenges to ensure competitive advantage against near-peer threats:

- Long-Range Precision Fires
- Next Generation Combat Vehicles
- Future Vertical Lift
- Army Network
- Air and Missile Defense
- Soldier Lethality

Additionally, S&T investments that support and enable the modernization priority areas are focused under the following investment areas:

- Medical
- Maturation
- Basic Research

Army S&T executes Research and Development (R&D) funding for its S&T program through a variety of strategies, mechanisms and partnerships. Scientists and engineers working at Army laboratories and other government laboratories and centers conduct *Basic Research (Budget Activity (BA) 1)*, *Applied Research (BA2)* and *Advanced Technology Development (BA3)* activities. These investments are also carried out through university grants, contracts with industry and agreements with other government agencies and organizations.

The Army S&T enterprise is also responsible for approximately 10 percent of the Army's *Advanced Component Development and Prototyping (BA4)* and all of its *Manufacturing Technology (ManTech)*. These resources support the risk reduction of S&T products, ensuring maturation and manufacturing feasibility for transition into systems development programs. Finally, the S&T Enterprise executes the Army's R&D funding allocated under the *Small Business Innovation Research (SBIR)* program.

## AIR & MISSILE DEFENSE S&T

Air & Missile Defense investments will provide the Army and joint force overmatch at extended ranges with precise and affordable weapons. S&T activities in this area seek to reduce the cost curve of missile defense, restore overmatch, survive volley-fire attacks and operate within sophisticated anti-access/area denial (A2/AD) and contested domains, and focus on:

- Maneuver-Short Range Air Defense (M-SHORAD)
- Smaller and more affordable missiles
- High-Energy Lasers (HEL)
- Gun-based counter-tactical and small Unmanned Aircraft Systems (UAS) capabilities
- Advanced seekers
- Advanced energetics and propulsion
- Next-generation radars

The *High-Energy Laser (HEL) Tactical Demonstrator* will demonstrate a mobile, 100 kW HEL integrated onto a Medium Tactical Vehicle to defeat rocket, artillery and mortar, unmanned aerial vehicles, and intelligence, surveillance and reconnaissance threats. This effort supports the Indirect Fire Protection Capability program of record (POR) with the plan

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**The Army is  
committed to  
ensuring that our  
Soldiers remain  
the most capable  
in the world.**

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# Army Science and Technology



Army S&T is making significant strides to advance HEL weapons, like this one. They have the potential to be a low-cost, effective complement to kinetic energy weapons to address threats from rockets, artillery and mortars, as well as from cruise missiles and UAS.

to transition a 100 kW laser system with precision targeting and tracking in degraded atmospheric conditions by Fiscal Year 2022 (FY22).

The *Maneuver Air Defense Technologies (MADT)* program is developing and demonstrating affordable missile technologies and components for an affordable, short-range air defense intercept capability to defeat rotary wing, tactical/lethal UAS and fixed wing threats. This effort supports the M-SHORAD POR with the plan to transition the intercept capability by FY24.

## LONG-RANGE PRECISION FIRES (LRPF) S&T

LRPF investments will provide massed, mobile, operational-level, kinetic and non-kinetic strike options to restore overmatch, improve deterrence and disrupt A2/AD on a complex, contested and expanded battlefield. S&T products include:

- Propulsion for extended long-range missiles
- Extended range cannon artillery
- Enhanced guidance/navigation for weapon systems
- Advanced energetics
- Advanced warheads for cluster munitions
- Next-generation radars

The *Land-Based Anti-Ship Missile (LBASM)* program directly responds to strategic guidance articulated in the Army Operating Concept, the Multi-Domain Battle Concept, and numerous warfighter capability gaps. LBASM is developing sensor and payload component technologies for engaging and defeating land- and maritime-based area denial systems. The effort will mature and integrate these component technologies into an existing airframe and perform flight testing against surrogate targets. LBASM technologies will transition to the Precision Fires Rocket and Missile Systems Program Office in FY23 for incorporation into future increments of the Precision Strike Missile POR.

The *Extended Range Cannon Artillery (ERCA)* program aims to deliver integrated cannon artillery technology solutions to increase lethality for U.S. Army 155 mm indirect fire systems. It will increase the systems range to over 60 km, minimize weight growth over current armaments, increase the rate of fire and reduce crew burden through automation. To accomplish project goals, the ERCA program is developing a suite of technologies (cannon, gun mount/recoil mitigation, ammunition handling, fire control, projectiles and propellant) using a holistic approach and balancing the trades between the various technologies to maximize performance at a system level. ERCA is planned to transition to multiple Program Executive Offices and Program Managers in FY22.



*A prototype ERCA Howitzer test bed fires an XM1113 Rocket Assist Projectile. The Army is increasing its lethality overmatch for current and next generation 155 mm systems by developing lightweight armaments with improved accuracy, range and rate of fire.*

### **NEXT GENERATION COMBAT VEHICLES (NGCV) S&T**

NGCV investments are dedicated to discovery, innovation and transition of technologies that ensure U.S. overmatch in offensive and defensive ground maneuver operations. S&T products in this area will enable ground combat formations to enter austere environments, survive and counter emerging threats, and sustain an operationally feasible footprint. Activities are focused on developing replacement options for current tanks and infantry fighting vehicles that realize weight, sustainment and cost savings, and include:

- NGCV design
- Vehicle protection against advanced threats
- Robotics and autonomy for combat operations and logistics

- Advanced power generation
- Advanced materials
- Efficient manned-unmanned teaming constructs
- Artificial intelligence, machine learning and autonomy

The Army's NGCVs will need manned, unmanned and optionally manned variants that include the most advanced protection, mobility, lethality and power generation capabilities to ensure that our Soldiers can survive first contact and defeat any adversary.



*A smaller footprint: The Army is focusing vehicle technology investments on vehicles that are smaller, lighter, intelligently interconnected, safer and more lethal than current combat platforms.*

# Army Science and Technology

The *Advanced Powertrain Demonstrator (APD)* is maturing and demonstrating leap-ahead combat vehicle powertrain performance through the integration of component technologies, including an Advanced Combat Engine (1,000 hp, high-power density, low-heat rejection); an Advanced Combat Transmission (high-efficient cross-drive transmission); Advanced Thermal Management; Integrated Starter Generator; and Advanced Li-Ion Modular Batteries. The APD will provide leap-ahead technology at the Technology Readiness Level (TRL) 6 level in FY19 for transition to future NGCV programs of record and industry partners.

The *Modular Active Protection Systems (MAPS)* program will establish, mature and demonstrate the Army's MAPS Framework. This Framework defines the standards and specifications to enable adaptable Active Protection System (APS) solutions that integrate into multiple Army vehicle platforms. The effort is also demonstrating soft-kill and hard-kill APS configurations utilizing interchangeable subsystems (sensors and countermeasures) that are interconnected via a MAPS Controller. Together, these technologies will enable APS commonality across the vehicle fleet and the ability to tailor APS components to meet weapons system platform needs.

## FUTURE VERTICAL LIFT (FVL) S&T

FVL S&T provides research, development, demonstration and transition of S&T products to provide the Army and joint force with manned, optionally manned, unmanned and autonomous attack, reconnaissance, utility and medical evacuation aviation platforms for high-speed and long-range operations.

FVL research, technology development and demonstrations focus on enabling longer range and persistence, larger payloads, increased speed, survivability and combat overmatch in the future A2/AD battlefield, with an overall lower cost of ownership. S&T investments include:

- Platform development and demonstration
- Next-generation UAS technologies
- Aviation protection and aircraft survivability

- Improved situational awareness
- Integrated mission systems
- Advanced power systems
- Efficient Manned-Unmanned Teaming Constructs
- Artificial Intelligence, Machine Learning and Autonomy

The *Joint Multi-Role Technology Demonstrator (JMR-TD)* is demonstrating platform and mission systems technologies in support of FVL. Major Army S&T achievements have occurred under this effort, with multiple successful flights demonstrating several revolutionary technologies, including advanced composites/low-cost manufacturing, active vibration control and improved design and analysis tools.



*The JMR-TD is demonstrating technologies to inform Army decisions about FVL capabilities, which could look like this hypothetical rendering.*

The *Next Generation Tactical UAS* program will demonstrate technologically feasible and affordable unmanned air system technologies to provide improved flight performance and increased survivability and reliability in order to inform the Future Tactical UAS acquisition program. Expanded mission sets with significantly increased capabilities will provide the warfighter with multi-role UAS operations in contested, multidomain environments against near-peer threats.

### ARMY NETWORK S&T

Army Network S&T leads the Army's efforts to develop and demonstrate technologies to enable a future hardware, software and infrastructure network that provides the Army and joint force with resilient mission command on the move and dominance in the maneuver Intelligence, Surveillance and Reconnaissance (ISR), joint fires and sustainment fights against a peer adversary in a contested cyber and electromagnetic environment.

To provide warfighters with the necessary equipment to support the Army's Network modernization objectives, the Army is focusing S&T investments in the following areas:

- Tactical communications and networking
- Assured Positioning, Navigation and Timing
- Electronic warfare
- Cyber Electromagnetic Activities
- Mission command applications
- Persistent ISR
- Command post

To ensure information dominance on the battlefield, the Army's tactical network must provide assured communications in contested, congested and degraded environments. This supports communications at the point of need and enables timely, decisive action. *Tactical Communications and Networking* efforts are addressing these challenges through the research and development of automated and intelligent networks, anti-jam voice and data, autonomous platform communications, spectrum situational awareness and high-bandwidth commercial technologies.

Technologies are needed that harden critical network and weapon systems and protect vital assets from emerging cyber threats as well as those that exploit the electromagnetic spectrum.



*Army communication systems of the future will minimize a unit's spectrum signature to thwart detection and disruption. To that end, Army S&T is developing technologies that use nontraditional portions of the EM spectrum.*

*Cyber Electromagnetic Activity S&T* investments deliver technologies that enable the resilience to fight through an attack and to acquire situational awareness by leveraging tactical assets. These investments will provide rapid access and effects to gain an advantage over adversaries. Research efforts

# Army Science and Technology

are also developing system architectures that support a warfighting network platform in order to increase interoperability across operational domains, decrease the burden of training and enable the tactical delivery of cyber-electromagnetic effects.

## SOLDIER LETHALITY S&T

Soldier Lethality is dedicated to discovery, innovation and transition of S&T products for improved Soldier and small-unit performance, decision-making and advanced lethality and assured overmatch against our adversaries.

Soldier Lethality leads research, development and demonstration of S&T products to improve individual and team performance; reduce tactical surprise; increase protection; and enhance lethality in close combat on an intensely lethal and distributed battlefield and within complex, urban terrain. Investments focus on integrated, lightweight, energy-efficient Soldier-centric systems and equipment, decision-making human performance research, physical augmentation for resilience and load carriage, and advanced training technologies. Areas of critical investment include:

- Next generation squad weapons, ammunition and fire control
- Integrated Soldier architecture of systems
- Enhanced body armor and Soldier-borne sensors and equipment
- Power and energy harvesting and distribution
- Physical assist technologies
- Improved Soldier and small unit performance
- Synthetic Training Environment

*Next Generation Soldier and Squad Weapons* investments include research into lighter weight materials, improved ammunition, modular components and enabling technologies such as fire controls, optics and powered rails. Future weapons and munitions need to defeat adversaries who are using partial and full defilade to protect their positions and equipment, limiting the effects of direct-fire small arms and indirect fire systems. In response, Army S&T is increasing weapon precision while reducing the size and weight of counter-

defilade capabilities, putting counter-defilade in the hands of Soldiers and small units along with more lethal weapons.

New training technologies and environments are emphasized to allow Soldiers to train and rehearse skills, such as faster decision-making, and to gain the advantage of speed over adversaries. S&T investments in *Synthetic Environments* combine advanced virtual reality technology with constructive and live environments to provide responsive and reconfigurable training that immerses human senses in mixed reality, including providing touch and feel to simulate objects such as obstacles and walls. Integrated with capabilities, such as intelligent agents that challenge the Soldier, synthetic training environments will improve individual and team performance while reducing training time and cost.

As technology and equipment proliferates on the Soldier and into the squad, and as battlefield scenarios have become more complex, the impact from physical and cognitive stressors has increased. This necessitates research to configure a *Soldier Architecture* that integrates ergonomically designed systems and components developed through material research, component miniaturization and capability integration. A critical research area that will contribute to the architecture is reduced weight through power harvesting, new and enhanced battery chemistries, and energy management approaches that can extend dismounted Soldier mission duration.

## MEDICAL S&T

The mission of the Medical S&T investment area is to lead research and technology development that ensures the Force sustains optimal health, is protected from disease and injury and receives optimal care in the event of injury or illness.

Medical S&T efforts address multiple health threats and seek to optimize, enhance, sustain and restore Soldier health and performance from accession through training, deployment, treatment of injuries and return to duty or transition to civilian life. Investments are focused on materiel and knowledge-based



medical solutions, including the delivery of improved combat casualty care, enhanced survivability, reduced impact due to injury and optimized downrange medical footprint. This investment strategy covers:

- Combat casualty care
- Military operational medicine
- Military infectious disease

The last 17 years of contingency operations have demonstrated that surgical intervention within 60 minutes of injury – the “golden hour” – significantly increases rates of casualty survival. Because operational threats such as A2/AD challenge the Army’s ability to evacuate Soldiers to surgical treatment within that hour, Army S&T is researching medical materiel and knowledge solutions to accelerate delivery of lifesaving medical care.

*Prolonged Field Care* will enable medical personnel, such as combat medics and battalion surgeons, to stabilize wounded personnel for extended periods of time until evacuation is feasible. The capability initially will consist of advanced blood products and new medical devices to control severe bleeding, and a portable, closed-loop, external life support system to provide lung and kidney function to patients who need them.

When medical evacuation is not feasible, the Army is developing *Autonomous Evacuation* technologies that use unmanned ground or air platforms, in conjunction with autonomous life support equipment, to move casualties to surgical care facilities. These platforms also will be useful for resupplying medical personnel during sustained operations. Army S&T investments in autonomous systems and advanced medical devices will provide tomorrow’s force dramatic increases in survival rates.

In addition to researching and developing technology solutions and options for the Army, the S&T Enterprise also works to reduce technology risks, speed transition and lower life cycle costs in advance of incorporation into weapon systems. The following investment areas are important tools to enable the

transition of mature and affordable capabilities to Army acquisition programs and ultimately to the field.

### TECHNOLOGY MATURATION INITIATIVE

The Technology Maturation Initiative (TMI) program serves as a strategic partnership between the S&T Enterprise, the requirements and the acquisition communities to speed the transition of the Army’s highest priority S&T efforts. Through technology maturation, integration and experimental prototyping, S&T can hasten the transition of emerging technologies and enable the development of feasible and affordable capabilities under future programs of record.



*The MMHEL will demonstrate a Stryker-based HEL experimental prototype that is suitable for maneuvering Brigade Combat Teams and capable of countering UAS, RAM and ISR threats.*

# Army Science and Technology

The *Multi-Mission High-Energy Laser (MMHEL)* is a priority TMI effort to integrate a 50 kW laser system onto a Stryker, with the intent to reduce the risk of key component technologies and conduct demonstrations to inform requirements for the M-SHORAD objective capability. The MMHEL will undergo an operational demonstration in FY21 to validate the laser system's counter-rocket, artillery, mortar (RAM); counter-UAS; counter-battery targeting and counter-materiel capabilities.

## MANUFACTURING TECHNOLOGY (ManTech)

The Army's ManTech program develops and refines manufacturing processes for affordable products, improved system performance and reduced life cycle costs. By exploring methods to manufacture technologies in parallel with the execution of S&T efforts, the Army ensures that any new manufacturing processes required for emerging technologies are developed prior to transition. As a result, ManTech activities reduce transition risk for emerging S&T products to acquisition programs.

As one example of numerous recent ManTech successes, the Affordable Protection against Objective Threats (APOT) project matured lower-hull manufacturing technologies associated with combat vehicles, providing advanced protection. This effort enabled the U.S. to domestically produce a new aluminum alloy with processes needed to form, forge and weld it into a structure for the underbody hull, providing a new standard in blast protection. The successes from APOT are informing requirements for future combat vehicles.

## BASIC RESEARCH

Army Basic Research seeks to advance the frontiers of fundamental S&T and drive long-term, game-changing Army capabilities through a multidisciplinary portfolio that links the Army's in-house researchers with the global academic community.

Basic Research investments are the Army's primary drivers to enable leap-ahead technologies that will enhance Soldier capability and increase Soldier protection. Activities are focused on discovering and understanding fundamental science through Army-led investigations and by assessing breakthrough innovations to advance overall scientific knowledge. This work generates new knowledge for the Army to address diverse, rapidly evolving threats, while simultaneously attracting the country's most talented and gifted scientists and engineers to the future workforce.

The Basic Research investment area leverages partnerships such as University Affiliated Research Centers, Collaborative Research Alliances, Multidisciplinary University Research Initiatives and the Single Investigator Program to exploit a range of research opportunities. Some major Army Basic Research efforts include:

- *Internet of Battlefield Things*

The Army is using an internet of things approach for networking the battlefield of the future. Key challenges under this concept are the deceptive and adversarial nature of the future operational environment, its large scale and extreme heterogeneity. To address these challenges, the Army is exploring novel distributed processing approaches to converge and integrate various sources of information, communication systems and analytical resources for faster, optimal decisions.

- *Ultra-Design Materials*

All of the Army modernization areas benefit from the development of new materials with unique properties not available in nature. Army S&T is developing a materials-by-design approach to create transformational protection, energetic, electronic and bio/bio-enabled materials.



*Internet of Battlefield Things – Novel distributed processing is essential to leverage the knowledge from many connected devices in time to quickly affect outcomes.*

- *Quantum Effects and Quantum Information Sciences*

Army research in this area focuses on generating advances in quantum science. Quantum science is the study of the behavior of matter and its interactions with energy on the scale of atoms and subatomic particles. This research will enable revolutionary approaches to information processing, secure communications and cryptography, jam-proof position and navigation, and ultraprecise sensing and imaging.

## **CONCLUSION**

The Army's Modernization Priorities and supporting S&T investment strategy provide a robust and unifying framework that postures the S&T program, workforce, laboratories and engineering centers, and industrial and academic partners to deliver disruptive technologies for Army and joint force operational overmatch. To facilitate critical developments for the future, the Army will leverage the best and brightest from across the S&T Enterprise, and bring together scientific professionals from government, academia and industry to address the most challenging technical barriers and ensure for competitive advantage to the U.S. Army and the joint force.



# APPENDICES

GLOSSARY OF TERMS

SYSTEMS BY CONTRACTOR

CONTRACTORS BY STATE

POINTS OF CONTACT

# Glossary of Terms

## ACQUISITION CATEGORIES (ACAT)

### ACAT I

ACAT I programs are Major Defense Acquisition Programs (MDAP) that are estimated to achieve statutorily defined MDAP cost threshold or are designated MDAP by the Defense Acquisition Executive (DAE) or the Army Acquisition Executive (AAE).

Dollar value: estimated by the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) to require an eventual total expenditure for Research, Development, Test and Evaluation (RDT&E) of more than \$480 million in Fiscal Year 2014 (FY14) constant dollars or for Procurement of more than \$2.790 billion in FY14. ACAT I programs have three subcategories:

- **ACAT ID**, for which the Milestone Decision Authority (MDA) is the USD(A&S) acting as the DAE. The “D” refers to the Defense Acquisition Board, which advises the DAE at major decision points.
- **ACAT IC**, for which the MDA is the Department of Defense (DOD) Component Head or, if delegated, the DOD Component Acquisition Executive (CAE). The “C” refers to Component; for the Army, the MDA is the AAE. The DAE designates programs ACAT ID or ACAT IC.
- **ACAT IB**, for acquisition programs initiated after October 1, 2017, the MDA is DOD Component Head or, if delegated, the DOD CAE; for the Army, the MDA is the AAE.

### ACAT II

ACAT II programs are defined as those acquisition programs that do not meet the criteria for ACAT I acquisition program, or are programs designated ACAT II by the MDA. The MDA is the AAE and is typically delegated to the Program Executive Officer (PEO). The dollar value is estimated to require total expenditure for RDT&E of more than \$185 million in FY14 constant dollars or for Procurement of more than \$835 million in FY14 constant dollars.

### ACAT III

ACAT III programs are defined as those acquisition programs that do not meet the criteria for ACAT I or ACAT II. The MDA is designated by the AAE and shall be at the lowest appropriate level, typically the PEO. The dollar value is estimated to require total expenditure for RDT&E of more than \$100 million in FY14 constant dollars, or for Procurement of more than \$400 million in FY14 constant dollars.

### ACAT IV

ACAT IV programs are defined as those acquisition programs that do not meet the criteria for ACAT I, ACAT II or ACAT III. The MDA is designated by the AAE and shall be at the lowest appropriate level, typically the PEO, however MDA can be further delegated to the colonel-level project manager. The estimated costs for ACAT IV acquisition programs are below the thresholds for ACAT III acquisition programs.

## ACQUISITION LIFE CYCLE PHASE

Each acquisition phase encompasses all the tasks and activities needed to bring a program to the next major milestone. Each acquisition life cycle phase provides a logical means of progressively translating broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable and survivable systems. The acquisition phases for the systems described in this handbook are defined below:

### Material Solution Analysis (MSA) Phase

The purpose of this phase is to conduct the analysis and other activities needed to choose the concept for the product that will be acquired, to begin translating validated capability gaps into system-specific requirements including the Key Performance Parameters and Key System Attributes, and to conduct planning to support a decision on the acquisition strategy for the product. Analysis of Alternatives (AoA), key trades among cost, schedule, performance, affordability analysis, risk analysis and planning for risk mitigation are key activities in this phase.

### **Technology Maturation & Risk Reduction (TMRR) Phase**

The purpose of this phase is to reduce technology risk, determine and mature the appropriate set of technologies to be integrated into a full system, and demonstrate critical technology elements on prototypes. This phase is a continuous discovery and development process reflecting close collaboration between the Science and Technology (S&T) community, the user and the system developer. It is an iterative process designed to assess the viability of technologies while simultaneously refining requirements. Entrance into this phase depends on the completion of the AoA, a proposed materiel solution and full funding for planned TMRR activity.

### **Engineering & Manufacturing Development (EMD) Phase**

The purpose of the EMD Phase is to develop a system or an increment of capability; complete full system integration; develop an affordable and executable manufacturing process; ensure operational supportability with particular attention to minimizing the logistics footprint; implement human systems integration; design for producibility; ensure affordability; protect critical program information by implementing appropriate techniques such as anti-tamper; and demonstrate system integration, interoperability, safety and utility. The Capability Development Document, Acquisition Strategy, Systems Engineering Plan, and Test and Evaluation Master Plan shall guide this effort. Entrance into this phase depends on technology maturity (including software), approved requirements and full funding. Unless some other factor is overriding in its impact, the maturity of the technology shall determine the path to be followed.

### **Production & Deployment (PD) Phase**

The purpose of the PD Phase is to achieve an operational capability that satisfies mission needs. Operational test and evaluation shall determine the effectiveness and suitability of the system. The MDA shall make the decision to commit DOD to production at Milestone C and shall document the decision in an Acquisition Decision Memorandum. Milestone C authorizes entry into Low Rate Initial Production (LRIP) (for MDAPs and major systems), into production or procurement (for non-major systems that do not require LRIP), or into

limited deployment authority to proceed in support of operational testing for Defense Business System (DBS) programs or software-intensive systems with no production components. Entrance into this phase depends on the following criteria:

- Acceptable performance in Developmental Test and Evaluation and Operational Assessment for Defense Operational Test and Evaluation oversight programs
- Mature software capability
- No significant manufacturing risks
- Manufacturing processes under control when Milestone C is a Full Rate Production (FRP) decision
- An approved Initial Capability Document if Milestone C is program initiation
- An approved Capability Production Document (CPD)
- A refined integrated architecture; acceptable interoperability
- Acceptable operational supportability and demonstration that the system is affordable throughout the life cycle, fully funded and properly phased for rapid acquisition

The CPD reflects the operational requirements, informed by EMD results, and details the performance expected of the production system. If Milestone C approves LRIP, a subsequent review and decision shall authorize FRP.

### **Operations & Support (O&S) Phase**

The purpose of the O&S Phase is to execute a support program that meets materiel readiness and operational support performance requirements, and sustains the system in the most cost-effective manner over its total life cycle. Planning for this phase shall begin prior to program initiation and shall be documented in the Life Cycle Sustainment Plan (LCSP). The O&S Phase has two major efforts: Life Cycle Sustainment and Disposal. Entrance into the Operations & Support Phase depends on meeting the following criteria: an approved CPD, an approved LCSP and a successful FRP decision.

# Glossary of Terms

## **ACQUISITION PROGRAM**

An acquisition program is a directed, funded effort designed to provide a new, improved or continuing weapon system or DBS capability in response to a validated operational need. Acquisition programs are divided into different categories that are established to facilitate decentralized decision-making, execution and compliance with statutory requirements. See Acquisition Categories.

## **ADVANCED CONCEPT TECHNOLOGY DEMONSTRATIONS (ACTD)**

ACTD are a means of demonstrating the use of emerging or mature technology to address critical military needs. ACTD themselves are not acquisition programs, although they are designed to provide a residual, usable capability upon completion. If the user determines that additional quantities are needed beyond the residual capability and that these quantities can be funded, the additional procurement constitutes an acquisition program with an acquisition category generally commensurate with the dollar value and risk of the additional buy.

## **CROSS-FUNCTIONAL TEAM (CFT)**

The Army initiated a realignment of modernization responsibilities in 2017. This involved the establishment of a pilot program consisting of eight CFTs aligned with the Army's six modernization priorities. The CFTs are led by warfighters with combat experience and given the task to develop a requirement informed by experimentation and technical demonstrations through teaming, agility and rapid feedback. This enables the development of a capability document and improves the decision-making for a potential program of record to regain overmatch over near-peer competitors. Each CFT includes program management, finance, S&T and other components.

## **DEFENSE BUSINESS SYSTEM (DBS)**

DBSs are DOD information systems that are financial, contracting, logistics, planning and budgeting, installations management, human resources management, and training and readiness systems. Business systems do not include national security systems or an information system used by the defense commissary system, the exchange system or for the morale, welfare and recreation of members of the Armed Forces using non-appropriated funds.

## **Business System Category (BSC)**

**BSC I** are priority defense business systems expected to have a total amount of budget authority over the period of the current Future Years Defense Program (FYDP) in excess of \$250 million in FY14 constant dollars; or DOD Chief Management Officer (CMO) designation as priority based on complexity, scope and technical risk, and after notification to Congress. The MDA is the AAE.

**BSC II** are defense business systems which do not meet criteria for BSC I, and any of the following: expected to have a total amount of budget authority over the period of the current FYDP in excess of \$50 million in FY14 constant dollars; and DOD CMO or Military Deputy CMO designation as requiring CMO certification. The MDA is the AAE and is typically delegated to the PEO.

**BSC III** are defense business systems which do not meet the criteria for BSC II. The MDA is designated by the AAE and shall be at the lowest appropriate level, typically the PEO.

## **DEMILITARIZATION AND DISPOSAL**

At the end of its useful life, a system must be demilitarized and disposed. During Demilitarization and Disposal, the program manager ensures materiel determined to require demilitarization is controlled and ensures disposal is carried out in a way that minimizes DOD's liability due to environmental, safety, security and health issues.



### **DEVELOPMENTAL TEST AND EVALUATION (DT&E)**

DT&E identifies potential operational and technological capabilities and limitations of the alternative concepts and design options being pursued; supports the identification and description of design technical risks, and provides data and analysis in support of the decision to certify the system ready for operational test and evaluation.

### **FULL MATERIEL RELEASE**

This process ensures all Army materiel is safe, operationally suitable and supportable before release to users. The assigned program manager determines necessary activities to certify materiel release readiness. This decision should be accomplished prior to FRP.

### **FULL OPERATIONAL CAPABILITY (FOC)**

FOC is when a system is delivered to a user and they have the ability to fully employ and maintain it to meet an operational need. The mission capabilities of a FOC system are defined in a system's Capability Development Document and Capability Production Document.

### **FULL RATE PRODUCTION (FRP)**

FRP is a decision, following the completion of operational testing of representative initial production products, to scale up production and/or fielding. In this part of the PD Phase, the remaining production or deployment of the product is completed, leading to FOC or Full Deployment. FRP is the highest level of production readiness.

### **INITIAL OPERATIONAL CAPABILITY (IOC)**

IOC is a point in time during the PD Phase where a system can meet the minimum operational (Threshold and Objective) capabilities for a user's stated need. The operational capability consists of support, training, logistics and system interoperability within the DOD operational environment. IOC is a good gauging point to see if there are any refinements needs before proceeding to FOC.

### **JOINT PROGRAM MANAGEMENT**

Any acquisition system, subsystem, component or technology program that involves a strategy that includes funding by more than one DOD component during any phase of a system's life cycle shall be defined as a joint program. Joint programs shall be consolidated and co-located at the location of the lead component's program office, to the maximum extent practicable.

### **LIVE FIRE TEST AND EVALUATION (LFT&E)**

LFT&E is conducted on covered systems, major munition programs, missile programs or a product improvement before it can proceed beyond LRIP. A covered system is any vehicle, weapon platform or conventional weapon system that includes features designed to provide some degree of protection to users in combat and is an ACAT I or II program. Depending upon its intended use, a commercial or nondevelopmental item may be a covered system or a part of a covered system. Systems requiring LFT&E may not proceed beyond LRIP until realistic survivability or lethality testing is completed and the report required by statute is submitted to the prescribed Congressional committees.

### **LOW RATE INITIAL PRODUCTION (LRIP)**

The objective of LRIP is to produce the minimum quantity necessary to provide production-configured or representative articles for Operational Tests; establish an initial production base for the system; and permit an orderly increase in the production rate for the system, sufficient to lead to FRP upon successful completion of Operational Testing. The LRIP quantity may not exceed 10 percent of the total production quantity without an approved waiver by the MDA and documented in the Acquisition Decision Memorandum.

### **MAJOR DEFENSE ACQUISITION PROGRAM (MDAP)**

A MDAP is an acquisition program that is not a highly sensitive, classified program as determined by the Secretary of Defense and that is designated by the USD(A&S) as an MDAP, or estimated by the USD(A&S) to require an eventual total expenditure for RDT&E of more than \$480 million in FY14 constant dollars or, for Procurement, of more than \$2.790 billion in FY14 constant dollars.

# Glossary of Terms

## MAJOR MILESTONE

A major milestone is the decision point that separates the phases of an acquisition program. MDAP milestones include, as examples, the decisions to authorize entry into the EMD phase or FRP. DBS milestones may include, for example, the decision to begin TMRR.

- **Milestone A:** Entry into the TMRR Phase
- **Milestone B:** Entry into the EMD Phase
- **Milestone C:** Entry into the PD Phase

## MAJOR SYSTEMS

Dollar value: estimated by the DOD to require an eventual total expenditure for RDT&E of more than \$185 million in FY14 constant dollars, or for Procurement, of more than \$835 million in FY14 constant dollars. The lowest category for major system designation is ACAT II.

## MILESTONE

The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program, e.g., proceeding to the next phase.

## MILESTONE DECISION AUTHORITY (MDA)

This is the individual designated in accordance with criteria established by the USD(A&S) for acquisition programs, to approve entry of an acquisition program into the next phase.

- **Defense Acquisition Executive (DAE):** The individual responsible for supervising the Defense Acquisition System. The DAE takes precedence on all acquisition matters after the Secretary of Defense and the Deputy Secretary of Defense.
- **Army Acquisition Executive (AAE):** The individual solely responsible for acquisition matters within the Department of the Army and the single decision authority for all Army acquisition matters. The AAE is responsible

for approving requests to initiate new acquisition programs, and will do so only when they are supported by approved capability documents, requisite funding and program documentation.

- **Program Executive Officer (PEO):** A military or civilian assigned programmatic responsibilities for the execution and management of ACAT II, III and IV programs, or for any other program determined by the AAE to require dedicated executive management.

## MODERNIZATION PRIORITY

In December 2017, the Army established six modernization priorities with one simple focus: make Soldiers and units more lethal. To be successful, ideas must be turned into actions through continuous experimenting and prototyping, improving acquisition business processes, pursuing appropriate Commercial Off-The-Shelf options and improving training. Additionally, the Army's modernized capabilities must have interoperability with allies built-in.

Based on these fundamentals, the Army's Modernization Priorities are:

- **Long-Range Precision Fires.** Develop platforms, capabilities, munitions and formations that restore U.S. Army dominance in range, lethality, mobility, precision and target acquisition.
- **Next Generation Combat Vehicles.** Develop combat vehicles that integrate other close combat capabilities in manned, unmanned and optionally manned teaming that leverages semi-autonomous and autonomous platforms in conjunction with the most modern firepower, protection, mobility and power generation capabilities necessary to ensure that our future combat formations can fight and win against any foe, in any environment.
- **Future Vertical Lift.** A set of manned, unmanned and optionally manned platforms that can execute attack, lift and reconnaissance missions on the modern and future battlefield at greater range, altitude, lethality and payload.
- **Army Network.** An integrated system of hardware, software and infrastructure that is sufficiently mobile, reliable, user-friendly, discreet

in signature, expeditionary and can be used to fight effectively in any environment where the electromagnetic spectrum is denied or degraded.

- **Air and Missile Defense.** A series of mobile integrated platforms, capabilities, munitions and formations that ensure our future combat formations are lethal while remaining protected from modern and advanced air and missile delivered fires, to include drones.
- **Soldier Lethality.** A holistic series of capabilities, equipment, training and enhancements that span all fundamentals of combat: shooting, moving, communicating, protecting and sustaining to ensure our Soldiers are more lethal and less vulnerable on the modern battlefield. This will include not only next generation individual and squad weapons, but also improved body armor, sensors, radios and load-bearing exoskeletons. These efforts will be joined by research in improved human performance and decision-making.

### MODIFICATIONS

Any modification that is of sufficient cost and complexity that it could itself qualify as an ACAT I program shall be considered for management purposes as a separate acquisition effort. Modifications that do not cross the ACAT I threshold are considered part of the program being modified, unless the acquisition program is no longer in production. In that case, the modification shall be considered a separate acquisition effort.

### OPERATIONAL TEST AND EVALUATION (OT&E)

OT&E is structured to determine the operational effectiveness and suitability of a system under realistic conditions, e.g., combat using threat or threat representative forces, targets and countermeasures. Soldiers will operate and maintain the system under conditions simulating combat stress and peacetime conditions. The independent Operational Test Activity will use production or production representative articles for OT&E that supports the FRP decision. Modeling and simulation should be considered during test planning.

### OPERATIONS AND SUPPORT

The objectives of this activity are the execution of a support program that meets the threshold values of all support performance requirements and sustainment

in the most cost-effective manner. A follow-on OT&E program that assesses performance and quality, compatibility and interoperability, and identifies deficiencies will be conducted, as appropriate. This activity also includes the execution of operational support plans, to include the transition from contractor to organic support, as appropriate.

### ADDITIONAL RESOURCES

For additional information on acquisition terms, or terms not defined, please refer to DOD Directives, available on the Internet at <http://www.esd.whs.mil/Directives/issuances/dodd>. DOD Instruction 5000.02, Operation of the Defense Acquisition System is available at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf> and the Defense Acquisition Guidebook is available at <https://www.dau.mil/tools/dag>.

# Systems by Contractor

## **60° Pharmaceuticals**

- Pharmaceutical Systems

## **AAI Corp.**

- Shadow Tactical Unmanned Aircraft System (TUAS) — RQ-7Bv2

## **AASKI Technology**

- Army Key Management Infrastructure (AKMI)

## **Abbott Point of Care**

- Neurotrauma and Psychological Health (NPH)

## **Acambis plc**

- Medical Countermeasure Systems (MCS) — Joint Vaccine Acquisition Program (JVAP) and Bioscavenger

## **Acrow Bridge**

- Line of Communications Bridge (LOCB)

## **Action Manufacturing**

- Artillery Ammunition
- Hydra-70 2.75 Inch Rocket Systems

## **Adams Communications & Engineering Technology**

- Airborne Reconnaissance Low (ARL)

- Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
- Fixed Wing
- Guardrail Common Sensor (GRCS)

## **ADSI**

- High Mobility Engineer Excavator (HMEE) I

## **AECOM**

- Assault Breach Vehicle (ABV)

## **Aerovironment, Inc.**

- Raven Small Unmanned Aircraft System (SUAS) — RQ-11B

## **Aimpoint, Inc.**

- Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS) M3E1

## **Airborne Systems North America**

- Joint Precision Airdrop System (JPADS)

## **Airbus Helicopter, Inc.**

- Lakota Light Utility Helicopter (LUH) — UH-72A

## **Alion Science and Technology**

- Army Watercraft Systems (AWS)

## **Alliant Techsystems**

- Small Arms — Crew Served Weapons (CSW)

## **Allison Transmission**

- Abrams Tank Upgrade — M1
- Family of Medium Tactical Vehicles (FMTV)

## **AlphaMicron**

- Soldier Protection System (SPS)

## **American Ordnance**

- Artillery Ammunition

## **AM General**

- High Mobility Multipurpose Wheeled Vehicle (HMMWV)
- Improved Ribbon Bridge (IRB)

## **Amivas**

- Pharmaceutical Systems

## **AMT**

- Mortar Systems

## **AMTEC Corp.**

- Ammunition — Medium Caliber

## **Anniston Army Depot**

- Abrams Tank Upgrade — M1
- Assault Breacher Vehicle (ABV)

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

## **ANP Technologies**

- Medical Support Systems and Evacuation (MSSE)

## **Applied Companies**

- Aviation Combined Arms Tactical Trainer (AVCATT)

## **Arcos Medical, Inc.**

- Combat Trauma and Acute Rehabilitation (CTAR)

## **Argon ST**

- Guardrail Common Sensor (GRCS)

## **ARMTEC**

- Artillery Ammunition

## **AT&T**

- Installation Information Infrastructure Modernization Program (I3MP)

## **Avon Protection Systems**

- Joint Service General Purpose Mask (JSGPM) — M-50/M-51

### **Avox Systems**

- Joint Service Aircrew Mask - Rotary Wing (JSAM — RW) MPU-5

### **AVT Simulation**

- Aviation Combined Arms Tactical Trainer (AVCATT)
- Close Combat Tactical Trainer (CCTT)

### **BAE Systems**

- Armored Multi-Purpose Vehicle (AMPV)
- Bradley Fighting Vehicle Systems (BFVS) — M2/M3
- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs
- Distributed Common Ground System—Army (DCGS-A)
- Enhanced Night Vision Goggle (ENVG)
- Family of Weapon Sights — Individual (FWS-I)
- High Mobility Engineer Excavator (HMEE) III

- Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES) Improved Recovery Vehicle — M88A2
- Hydra-70 2.75 Inch Rocket Systems
- Lightweight 155 mm Howitzer System (LW155)
- Medium Dozer — T-9
- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)
- Paladin Family of Vehicles (FOV) — M109A6 Paladin/M992A2 FAASV/ M109A7 SPH/M992A3 CAT and Extended Range Cannon Artillery (ERCA)
- Precision Guidance Kit (PGK)
- Range Radar Replacement Program (RRRP)
- Soldier Protection System (SPS)

### **Banyan Biomarkers**

- Neurotrauma and Psychological Health (NPH)

### **Barrett Firearms Manufacturing Inc.**

- Small Arms — Precision Weapons (PW)

### **Battelle Memorial Institute**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

### **Berg Company**

- Battlefield Kitchen (BK)

### **Bechtel**

- Assembled Chemical Weapons Alternatives (ACWA)

### **Bechtel Parsons Blue Grass**

- Assembled Chemical Weapons Alternatives (ACWA)

### **Bethel Industries**

- Soldier Protection System (SPS)

### **BioFire Defense, LLC**

- Medical Countermeasure Systems (MCS) — Diagnostics

### **Birdon Corporation**

- Improved Ribbon Bridge (IRB)

### **Bluegrass Army Depot**

- Artillery Ammunition

### **Boeing**

- Apache Attack Helicopter AH-64D/E
- Chinook — CH-47F

- Defense Enterprise Wideband SATCOM System (DEWSS)
- Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
- Integrated Family of Test Equipment (IFTE)

### **Booz Allen Hamilton**

- Common Hardware Systems (CHS)
- Distributed Common Ground System—Army (DCGS-A)

### **Bowhead**

- Common Hardware Systems (CHS)

### **Bowhead Logistics Solutions**

- Tactical Mission Command (TMC)

### **BrainScope**

- Neurotrauma and Psychological Health (NPH)

### **Bravura Information Technologies, Inc.**

- Persistent Surveillance Systems-Tethered (PSS-T)

### **Buffalo Turbine**

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

# Systems by Contractor

## **BWAY Corporation**

- Ammunition — Small Caliber

## **CACI**

- Army Key Management Infrastructure (AKMI)
- Integrated Personnel and Pay System-Army (IPPS-A)
- Medical Communications for Combat Casualty Care (MC4)
- Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) — Stryker Sensor Suites

## **Cangene Corporation**

- Medical Countermeasure Systems (MCS) — Joint Vaccine Acquisition Program (JVAP) and Bioscavenger

## **Capco Inc**

- Small Arms — Individual Weapons (IW)

## **Carter Enterprises, LLC**

- Soldier Protection System (SPS)

## **Case New Holland**

- High Mobility Engineer Excavator (HMEE) III

## **Caterpillar, Inc.**

- Family of Medium Tactical Vehicles (FMTV)
- Medium Dozer — T-9

- Motor Grader — 120M
- Scraper — 621G

## **Ceradyne, Inc.**

- Soldier Protection System (SPS)

## **Chemring Ordnance**

- Artillery Ammunition

## **Chemring Sensors & Electronic Systems**

- Husky Mounted Detection System (HMDS)
- Joint Biological Tactical Detection System (JBTDS)

## **Choctaw Manufacturing Defense Contractors**

- Camel II Unit Water Pod System

## **ChromoLogic, LLC**

- Combat Trauma and Acute Rehabilitation (CTAR)

## **Cole Engineering Services, Inc.**

- Aviation Combined Arms Tactical Trainer (AVCATT)
- One Semi-Automated Force (OneSAF)

## **Colt Defense, LLC**

- Small Arms — Crew Served Weapons (CSW)

- Small Arms — Individual Weapons (IW)

## **CONCO**

- Hydra-70 2.75 Inch Rocket Systems

## **Crane Army Ammunition Activity**

- Artillery Ammunition

## **Critical Solutions International, Inc.**

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

## **Cubic Global Defense**

- Home Station Instrumentation Training System (HITS)
- Instrumentable-Multiple Integrated Laser Engagement System (I-MILES)

## **Cummins Power Generation**

- Tactical Electric Power (TEP)

## **CymSTAR, LLC**

- Aviation Combined Arms Tactical Trainer (AVCATT)

## **Daimler Trucks North America LLC/Freightliner**

- Line Haul Tractor

## **Day & Zimmermann-Lone Star**

- Artillery Ammunition

## **Dell**

- Distributed Common Ground System-Army (DCGS-A)

## **Detroit Diesel**

- Line Haul Tractor

## **DOK-ING**

- Robotic Mine Flail — M160

## **Draper Laboratory, Inc.**

- Joint Precision Airdrop System (JPADS)

## **Dynamics Research Corporation**

- Army Key Management Infrastructure (AKMI)

## **DynCorp International**

- Fixed Wing

## **Dynetics, Inc.**

- Calibration Sets Equipment (CALSETS)

## **DynPort Vaccine**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

- Medical Countermeasure Systems (MCS) — Joint Vaccine Acquisition Program (JVAP) and Bioscavenger

#### **Eagle Industries**

- Soldier Protection System (SPS)

#### **Elbit Systems of America**

- Mortar Systems

#### **Emergent Biosolutions**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

#### **Endeavor Robotics**

- Common Robotic System Individual (CRS(I))
- Man Transportable Robotic System Increment II (MTRS Inc II)

#### **Engineering Solutions and Products**

- Tactical Network Transport

#### **Entwistle**

- Load Handling System Compatible Water Tank Rack (Hippo)

#### **Equinix**

- Combat Service Support Communications (CSS Comms)

#### **Esri**

- Distributed Common Ground System—Army (DCGS-A)

#### **Eurofins Advantar**

- Pharmaceutical Systems

#### **Fabrique National Manufacturing, LLC**

- Small Arms — Crew Served Weapons (CSW)

#### **Fast-Track Drugs and Biologics, LLC**

- Pharmaceutical Systems

#### **Fidelity Technologies Corporation**

- Tactical Electric Power (TEP)

#### **FLIR Systems, Inc.**

- Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DR SKO)

#### **Fluke Corp.**

- Calibration Sets Equipment (CALSETS)
- Test Equipment Modernization (TEMOD)

#### **FN America LLC**

- Small Arms — Crew Served Weapons (CSW)

- Small Arms — Individual Weapons (IW)

#### **General Atomics Aeronautical**

- Gray Eagle Unmanned Aircraft System (UAS) — MQ-1C

#### **General Dynamics**

- Common Hardware Systems (CHS)
- Communications Security (COMSEC)
- Distributed Common Ground System—Army (DCGS-A)
- Hydra-70 2.75 Inch Rocket Systems
- Installation Information Infrastructure Modernization Program (I3MP)
- Tactical Mission Command (TMC)
- Tactical Network Transport On-the-Move

#### **General Dynamics European Land Systems – Germany**

- Improved Ribbon Bridge (IRB)

#### **General Dynamics Information Technology**

- Joint Effects Model (JEM) 1 and 2
- Medical Simulation Training Center (MSTC)
- Tactical Mission Command (TMC)

#### **General Dynamics Land Systems**

- Abrams Tank Upgrade — M1
- Assault Breach Vehicle (ABV)
- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)
- Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) — Stryker Sensor Suites
- Stryker Family of Vehicles (FOV)

#### **General Dynamics Land Systems – Canada**

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

#### **General Dynamics Mission Systems**

- Communications Security (COMSEC)
- Home Station Instrumentation Training System (HITS)
- Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT)
- Medical Simulation Training Center (MSTC)
- Prophet
- Tactical Network Transport

# Systems by Contractor

## **General Dynamics Ordnance and Tactical Systems**

- Ammunition — Medium Caliber
- Ammunition — Tank
- Artillery Ammunition
- Ground Mobility Vehicle (GMV)
- Hydra-70 2.75 Inch Rocket Systems
- Precision Guidance Kit (PGK)
- Small Arms — Crew Served Weapons (CSW)

## **General Electric**

- Black Hawk Utility Helicopter — UH/HH-60

## **Gentex Corp.**

- Soldier Protection System (SPS)

## **Georgia Tech Applied Research Corporation**

- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

## **Gilead Sciences**

- Medical Countermeasure Systems (MCS) — Biological Defense Therapeutics (BDTX)

## **Goodrich**

- Chinook — CH-47F

## **Griffon Aerospace**

- Air Defense Artillery (ADA) Targets

## **GS Engineering**

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

## **Gulfstream**

- Fixed Wing

## **Harris**

- Communications Security (COMSEC)
- Defense Enterprise Wideband SATCOM System (DEWSS)
- Enhanced Night Vision Goggle (ENVG)
- Handheld, Manpack and Small Form Fit (HMS)

## **Hawk Protection**

- Soldier Protection System (SPS)

## **Heckler and Koch Defense Inc.**

- Small Arms — Individual Weapons (IW)

## **HDT**

- Force Provider Expeditionary (FPE)

## **Holston Army Ammunition Plant**

- Artillery Ammunition

## **Honeywell**

- Abrams Tank Upgrade — M1
- Chinook — CH-47F

## **HP**

- Distributed Common Ground System—Army (DCGS-A)

## **Humacyte, Inc.**

- Combat Trauma and Acute Rehabilitation (CTAR)

## **Human Biomed Inc.**

- Combat Trauma and Acute Rehabilitation (CTAR)

## **Hydrema**

- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

## **IAP Inc.**

- Defense Enterprise Wideband SATCOM System (DEWSS)

## **InBios International, Inc.**

- Pharmaceutical Systems

## **IBM**

- Distributed Common Ground System—Army (DCGS-A)
- General Fund Enterprise Business Systems (GFEBS)

## **Infrascan**

- Neurotrauma and Psychological Health (NPH)

## **IRTC**

- Sentinel Aerial Surveillance Radar — AN/MPQ-64

## **Isometrics, Inc.**

- Modular Fuel System (MFS)

## **Janssen**

- Pharmaceutical Systems

## **JANUS**

- Tactical Network Transport

## **JCB**

- High Mobility Engineer Excavator (HMEE) I



- Light Capability Rough Terrain Forklift (LCRTF)
- Route Clearance Interrogation System (RCIS) Type 1

#### **Johns Hopkins University Applied Physics Laboratory**

- Defense Enterprise Wideband SATCOM System (DEWSS)

#### **Joint Manufacturing & Technology Center**

- High Mobility Multipurpose Wheeled Vehicle (HMMWV)
- Mobile Maintenance Equipment Systems (MMES)

#### **Joint Systems Manufacturing Center**

- Abrams Tank Upgrade — M1

#### **KDH Defense Systems**

- Soldier Protection System (SPS)

#### **Keysight Technologies, Inc.**

- Calibration Sets Equipment (CALSETS)
- Test Equipment Modernization (TEMOD)

#### **KGS**

- Medical Simulation Training Center (MSTC)

#### **King Aerospace**

- Fixed Wing

#### **Kipper Tool Company**

- Family of Engineer Combat and Construction Sets (ECACS)

#### **Knight's Armament Co.**

- Small Arms — Precision Weapons (PW)

#### **Kongsberg Defense & Aerospace**

- Common Remotely Operated Weapon Station (CROWS)

#### **L3 Communication Systems**

- Combat Service Support Communications (CSS Comms)
- Communications Security (COMSEC)
- Distributed Common Ground System—Army (DCGS-A)

#### **L3 Communication Systems - West**

- Guardrail Common Sensor (GRCS)

#### **L3 Fuzing and Ordnance Systems**

- Mortar Systems

#### **L3 Aerospace Systems**

- Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
- Fixed Wing

#### **L3 IEC**

- Precision Guidance Kit (PGK)

#### **L3 Technologies**

- Apache Attack Helicopter AH-64D/E
- Screening Obscuration Module (SOM)

#### **L3 Warrior Sensor Systems**

- Enhanced Night Vision Goggle (ENVG)
- Enhanced Night Vision Goggle - Binocular (ENVG-B)

#### **Laerdal Medical**

- Medical Simulation Training Center (MSTC)

#### **Leidos**

- Advanced Field Artillery Tactical Data System (AFATDS)
- Airborne Reconnaissance Low (ARL)
- Biometric Enabling Capability (BEC)
- Distributed Common Ground System—Army (DCGS-A)
- Fixed Wing
- One Semi-Automated Force (OneSAF)

#### **Leonardo DRS**

- Assault Breacher Vehicle (ABV)

- Combat Service Support Communications (CSS Comms)
- Enhanced Night Vision Goggle (ENVG)
- Family of Weapon Sights — Individual (FWS-I)
- Heavy Equipment Transporter System (HETS)
- Joint Assault Bridge (JAB)
- Joint Battle Command-Platform (JBC-P)
- Joint Effects Targeting System (JETS) Target Location Designation System (TLDS)
- Modular Fuel System (MFS)
- Test Equipment Modernization (TEMOD)

#### **Letterkenny Army Depot**

- Force Provider Expeditionary (FPE)
- Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)

#### **Lex Products Corp.**

- Force Provider Expeditionary (FPE)

#### **Lockheed Martin**

- Apache Attack Helicopter AH-64D/E
- Distributed Common Ground System—Army (DCGS-A)
- Guardrail Common Sensor (GRCS)

# Systems by Contractor

- Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead
- HELLFIRE Family of Missiles
- High Mobility Artillery Rocket System (HIMARS) — M142
- Javelin
- Joint Air-to-Ground Missile (JAGM)
- Multiple Launch Rocket System (MLRS) — M270A1
- PATRIOT Advanced Capability-3 (PAC-3)
- Precision Strike Missile (PrSM)
- Range Radar Replacement Program (RRRP)

## **Lockheed Martin Missiles and Fire Control**

- Army Tactical Missile System (ATACMS)

## **Lockheed Martin Rotary and Mission Systems**

- Counterfire Target Acquisition Radar — AN/TPQ-53
- Instrumentable-Multiple Integrated Laser Engagement System (I-MILES)

## **Lockheed Martin Training and Logistics Solutions**

- Close Combat Tactical Trainer (CCTT)

- Joint Land Component Constructive Training Capability (JLCCTC)

## **LogiCore**

- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

## **Longbow LLC**

- Apache Attack Helicopter AH-64D/E

## **Luna Innovations Inc.**

- Combat Trauma and Acute Rehabilitation (CTAR)

## **Mabey, Inc**

- Line of Communications Bridge (LOCB)

## **Mandus Group**

- Mobile Maintenance Equipment Systems (MMES)

## **Massachusetts Institute of Technology, Lincoln Laboratory**

- Medical Support Systems and Evacuation (MSSE)

## **Matech**

- Mortar Systems

## **ManTech**

- Distributed Common Ground System–Army (DCGS-A)

## **McAlester Army Ammunition Plant**

- Artillery Ammunition

## **Meggitt Training Systems**

- Engagement Skills Trainer (EST) II

## **Meridian Medical Technologies**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

## **Meritor**

- Family of Medium Tactical Vehicles (FMTV)
- Line Haul Tractor

## **Microsoft**

- Distributed Common Ground System–Army (DCGS-A)
- Tactical Mission Command (TMC)

## **Mil-Mar Century, Inc.**

- Load Handling System Compatible Water Tank Rack (Hippo)

## **Mirion Technologies**

- Joint Personal Dosimeter - Individual (JPD-IND)

## **MITRE**

- Distributed Common Ground System–Army (DCGS-A)

## **Nanohmics**

- Medical Support Systems and Evacuation (MSSE)

## **Naval Air Warfare Center Aircraft Division**

- Unified Command Suite (UCS)

## **Navistar Defense**

- Mine Resistant Ambush Protected Vehicles (MRAP)

## **NetApp**

- Distributed Common Ground System–Army (DCGS-A)

## **Neomatrix Therapeutics**

- Combat Trauma and Acute Rehabilitation (CTAR)

### **Neurokinetic**

- Neurotrauma and Psychological Health (NPH)

### **Nomad GCS**

- Unified Command Suite (UCS)

### **Northrop Grumman**

- Air and Missile Defense Planning and Control System (AMDPCS)
- Airborne Reconnaissance Low (ARL)
- Army Integrated Air and Missile Defense (IAMD)
- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs
- Defense Enterprise Wideband SATCOM System (DEWSS)
- Forward Area Air Defense Command and Control (FAAD C2)
- Global Combat Support System-Army (GCSS-Army)
- Guardrail Common Sensor (GRCS)
- Integrated Family of Test Equipment (IFTE)

- Joint Tactical Ground Station (JTAGS)
- Lightweight Laser Designator Rangefinder (LLDR) AN/PED-1, AN/PED-1A and AN/PED-1B
- Precision Guidance Kit (PGK)
- Rocket, Artillery, Mortar (RAM) Warn
- Spider — Command Destruct Networked Command Munition Dispensing Set: Increment 1A

### **Northrop Grumman Information Technology**

- Guardrail Common Sensor (GRCS)
- Joint Warning and Reporting Network (JWARN) 1
- Joint Warning and Reporting Network (JWARN) 2

### **Northrop Grumman Innovation Systems**

- Ammunition — Medium Caliber
- Ammunition — Small Caliber
- Ammunition — Tank
- Artillery Ammunition
- Spider — Command Destruct Networked Command Munition Dispensing Set: Increment 1A

### **Northrop Grumman Mission Systems**

- Guardrail Common Sensor (GRCS)

### **Northrop Grumman Technology Services**

- Fixed Wing

### **Nova Technologies**

- Call For Fire Trainer (CFFT) Immersive System
- Call For Fire Trainer Increment 3 (CFFT-3)

### **Oculogica**

- Neurotrauma and Psychological Health (NPH)

### **Olin Corporation**

- Ammunition — Small Caliber

### **Ology Bioservices**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

### **Optics 1**

- Laser Target Locator Module 2 (LTLM 2)

### **Oracle**

- Distributed Common Ground System-Army (DCGS-A)

### **Oshkosh**

- Common Bridge Transporter (CBT)
- Family of Medium Tactical Vehicles (FMTV)

- Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT Extended Service Program (ESP)
- Heavy Equipment Transporter System (HETS)
- Improved Ribbon Bridge (IRB)
- Joint Light Tactical Vehicle (JLTV)
- Mine Resistant Ambush Protected Vehicles (MRAP)
- Palletized Load System (PLS) and PLS Extended Service Program (ESP)

### **Palantir**

- Distributed Common Ground System-Army (DCGS-A)

### **PD Systems**

- Tactical Electric Power (TEP)

### **Pearson Engineering LTD**

- Assault Breacher Vehicle (ABV)

### **Pine Bluff Arsenal**

- Artillery Ammunition
- Chemical Biological Protective Shelter (CBPS) - M8E1
- Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DR SKO)
- Mortar Systems

# Systems by Contractor

## **PM Ground Soldier**

- Mortar Systems

## **POCAL Industries, Inc.**

- Mortar Systems

## **Point Blank Protective Apparel and Uniforms**

- Soldier Protection System (SPS)

## **Polo Custom Products, Inc.**

- Medical Support Systems and Evacuation (MSSE)

## **Potomac Fusion**

- Distributed Common Ground System–Army (DCGS-A)

## **PPD**

- Pharmaceutical Systems

## **QinetiQ North America**

- Common Robotic System Individual (CRS(I))

## **Quantitech, Inc.**

- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures

(ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

## **Rafa**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

## **Raytheon**

- Distributed Common Ground System–Army (DCGS-A)
- Improved Target Acquisition System (ITAS)
- Javelin
- PATRIOT Advanced Capability-3 (PAC-3)
- Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)

## **Raytheon Intelligence, Information and Services**

- Medical Simulation Training Center (MSTC)

## **Raytheon Missile Systems**

- Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-based Phalanx Weapon System (LPWS)
- Excalibur Precision 155 mm Projectiles
- Precision Strike Missile (PrSM)
- Tube-Launched, Optically Tracked, Wireless-Guided (TOW) Missiles

## **Ready One**

- Force Provider Expeditionary (FPE)

## **Redhat**

- Distributed Common Ground System–Army (DCGS-A)

## **Red River Army Depot**

- High Mobility Multipurpose Wheeled Vehicle (HMMWV)

## **Remington Arms Co. Inc.**

- Small Arms — Precision Weapons (PW)

## **Revision Military Ltd.**

- Soldier Protection System (SPS)

## **Riptide Software, Inc.**

- Medical Simulator Training Center (MSTC)

## **Rockwell Collins**

- Chinook — CH-47F
- Handheld, Manpack and Small Form Fit (HMS)

## **SafeNet**

- Communications Security (COMSEC)

## **Saab Dynamics AB**

- M3E1 Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS)

## **Saab Training USA, LLC**

- Instrumentable-Multiple Integrated Laser Engagement System (I-MILES)

## **SAIC**

- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

## **Siemens**

- Installation Information Infrastructure Modernization Program (I3MP)

## **Sierra Nevada Corporation**

- Army Key Management Infrastructure (AKMI)
- Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
- Fixed Wing

- Medical Support Systems and Evacuation (MSSE)

**Sigmatech, Inc.**

- Joint Tactical Ground Station (JTAGS)

**Sig Sauer Inc.**

- Small Arms — Individual Weapons (IW)

**Sikorsky**

- Black Hawk Utility Helicopter — UH/HH-60

**Smiths Detection**

- Joint Chemical Agent Detector (JCAD) — M4A1

**Software Engineering Directorate (SED), U.S. Army Aviation and Missile Research, Development and Engineering Center**

- Joint Battle Command-Platform (JBC-P)

**Southeastern Computer Consultants, Inc.**

- Tactical Mission Command (TMC)

**Southwest Research Institute**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

**SRCTec, LLC**

- Lightweight Counter Mortar Radar (LCMR) — AN/TPQ-50

**State University of New York**

- Pharmaceutical Systems

**STERIS**

- Joint Service Equipment Wipe (JSEW)

**Support Systems Associates, Inc.**

- Fixed Wing

**Systems Engineering Solutions, Inc.**

- Fixed Wing
- Guardrail Common Sensor (GRCS)

**Takeda Pharmaceuticals**

- Pharmaceutical Systems

**Tel-Instrument Electronics Corp.**

- Test Equipment Modernization (TEMOD)

**Textron Aviation**

- Fixed Wing
- Guardrail Common Sensor (GRCS)

**Textron Defense Systems**

- Spider — Command Destruct Networked Command Munition Dispensing Set: Increment 1A

**TFAB Defense Systems**

- Improved Environmental Control Units (IECU)

**Thales Defense & Security, Inc.**

- Handheld, Manpack and Small Form Fit (HMS)

**Thales Raytheon Systems**

- Sentinel Aerial Surveillance Radar — AN/MPQ-64

**Therapure Biopharma Inc.**

- Medical Countermeasure Systems (MCS) — Chemical Defense Pharmaceuticals (CDP)

**TJ, Inc.**

- Call For Fire Trainer (CFFT) Immersive System
- Call For Fire Trainer Increment 3 (CFFT-3)

**Tobyhanna Army Depot**

- Mobile Maintenance Equipment Systems (MMES)

**Tri-Tech USA, Inc.**

- Force Provider Expeditionary (FPE)

**Triton Systems**

- Combat Trauma and Acute Rehabilitation (CTAR)

**Tucson Embedded Systems**

- Distributed Common Ground System-Army (DCGS-A)

**U.S. Army Aviation and Missile Research, Development and Engineering Center Prototype Integration Facility, Redstone Defense Systems**

- Black Hawk Utility Helicopter — UH/HH-60

**US Ordnance**

- Small Arms — Crew Served Weapons

**United Technologies Aerospace Systems**

- Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM) and Common Infrared Countermeasure (CIRCM) programs

**University of Maryland**

- Pharmaceutical Systems

# Systems by Contractor

## **Valeant Pharmaceuticals International, Inc.**

- Medical Countermeasure Systems (MCS) – Chemical Defense Pharmaceuticals (CDP)

## **Vascular Solutions Inc.**

- Pharmaceutical Systems

## **Viasat**

- Communications Security (COMSEC)
- Joint Battle Command-Platform (JBC-P)

## **ViaTech Systems, Inc.**

- Distributed Common Ground System–Army (DCGS-A)

## **Vigor Works LLC**

- Army Watercraft Systems (AWS)

## **Vision Ability Execution, Inc.**

- Installation Information Infrastructure Modernization Program (I3MP)

## **Visionary Products, Inc.**

- Radiological Detection System (RDS)

## **VMware**

- Distributed Common Ground System–Army (DCGS-A)

## **VT Miltope**

- Integrated Family of Test Equipment (IFTE)
- Mortar Systems

## **Watervliet Arsenal**

- Mortar Systems

## **Westa**

- Pharmaceutical Systems

## **XMCO Inc.**

- Assault Breach Vehicle (ABV)
- High Mobility Engineer Excavator (HMEE) I and III

## **Zeta Associates**

- Guardrail Common Sensor (GRCS)

## **ZOLL**

- Combat Trauma and Acute Rehabilitation (CTAR)

# Contractors by State

## Alabama

- Anniston Army Depot
- Dynetics, Inc.
- General Dynamics Ordnance and Tactical Systems
- Griffon Aerospace
- IRTC
- Leonardo DRS
- LogiCore
- Northrop Grumman
- Quantitech, Inc.
- SAIC
- Sigmatech, Inc.
- Software Engineering Directorate (SED), U.S. Army Aviation and Missile Research, Development and Engineering Center
- Support Systems Associates, Inc.
- Systems Engineering Solutions, Inc.
- TFAB Defense Systems
- U.S. Army Aviation and Missile Research Development and Engineering Center (AMRDEC) Prototype Integration Facility (PIF), Redstone Defense Systems (RDS)
- VT Miltope

## Arizona

- Alliant Techsystems
- BAE Systems
- Boeing
- General Dynamics
- General Dynamics Mission Systems
- Honeywell

- L3 Communication Systems
- Lockheed Martin
- Raytheon
- Raytheon Missile Systems
- Tucson Embedded Systems

## Arkansas

- AMTEC Corp.
- Lockheed Martin
- Lockheed Martin Missiles and Fire Control
- Pine Bluff Arsenal

## California

- Aerovironment, Inc.
- Applied Companies
- Argon ST
- ARMTEC
- BAE Systems
- Banyan Biomarkers
- Boeing
- Ceradyne, Inc.
- ChromoLogic, LLC
- Cubic Global Defense
- Esri
- Eurofins Advantur
- General Atomics Aeronautical
- General Dynamics Information Technology
- Gilead Sciences
- HP
- Keysight Technologies, Inc.
- L3 IEC
- Leonardo DRS

- NetApp
- Northrop Grumman
- Northrop Grumman Information Technology
- Northrop Grumman Mission Systems
- Oracle
- Palantir
- Thales Raytheon Systems
- Viasat
- VMware

## Colorado

- Birdon Corporation
- Capco Inc
- Lockheed Martin
- Keysight Technologies, Inc.
- Northrop Grumman

## Connecticut

- Colt Defense, LLC
- Goodrich
- Lex Products Corp.
- Sikorsky
- United Technologies Aerospace Systems

## Delaware

- ANP Technologies

## District of Columbia (DC)

- 60° Pharmaceuticals
- Booz Allen Hamilton
- Siemens

## Florida

- AVT Simulation
- Banyan Biomarkers
- Chemring Ordnance
- Cole Engineering Services, Inc.
- General Dynamics Mission Systems
- General Dynamics Ordnance and Tactical Systems
- Harris
- Hawk Protection
- Knight's Armament Co.
- L3 Technologies
- Leidos
- Leonardo DRS
- Lockheed Martin
- Lockheed Martin Rotary and Mission Systems
- Lockheed Martin Training and Logistics Solutions
- Longbow LLC
- Northrop Grumman
- Northrop Grumman Information Technology
- Nova Technologies
- Ology Bioservices
- Point Blank Protective Apparel and Uniforms
- Raytheon
- Riptide Software, Inc.
- Saab Training USA, LLC
- Thales Raytheon Systems
- TJ, Inc.

# Contractors by State

## Georgia

- BWAY Corporation
- General Dynamics Mission Systems
- Georgia Tech Applied Research Corporation
- Gulfstream
- JCB
- Kipper Tool Company
- Meggitt Training Systems
- Mirion Technologies

## Illinois

- Abbott Point of Care
- Caterpillar, Inc.
- Equinix
- General Dynamics Ordnance and Tactical Systems
- Joint Manufacturing & Technology Center
- Mandus Group
- Navistar Defense
- Northrop Grumman
- Takeda Pharmaceuticals

## Indiana

- AECOM
- Allison Transmission
- AM General
- Crane Army Ammunition Activity

## Iowa

- American Ordnance
- Rockwell Collins

## Kansas

- Polo Custom Products, Inc.
- Textron Aviation

## Kentucky

- Bechtel Parsons Blue Grass
- Bluegrass Army Depot
- CONCO

## Maine

- General Dynamics Ordnance and Tactical Systems

## Maryland

- AAI Corp.
- AASKI Technology
- Adams Communications & Engineering Technology
- Amivas
- BrainScope
- Bravura Information Technologies Inc.
- CACI
- Dynamics Research Corporation
- DynPort Vaccine
- Emergent Biosolutions
- Engineering Solutions and Products
- Fast-Track Drugs and Biologics, LLC
- FLIR Systems, Inc.
- General Dynamics Information Technology
- JANUS

- Johns Hopkins University Applied Physics Laboratory
- Mabey, Inc.
- Matech
- Meridian Medical Technologies
- Naval Air Warfare Center Aircraft Division
- Northrop Grumman
- SafeNet
- Sierra Nevada Corporation
- Smiths Detection
- Thales Defense & Security, Inc.
- University of Maryland
- Westa

## Massachusetts

- Acambis plc
- Draper Laboratory, Inc.
- Endeavor Robotics
- General Dynamics
- General Dynamics Mission Systems
- General Electric
- L3 Communication Systems
- Massachusetts Institute of Technology, Lincoln Laboratory
- QinetiQ North America
- Raytheon
- Textron Defense Systems
- Triton Systems

## Michigan

- AM General
- Avon Protection Systems
- BAE Systems

- Detroit Diesel
- General Dynamics Land Systems
- GS Engineering
- Meritor
- XMCO Inc.

## Minnesota

- Cummins Power Generation
- Northrop Grumman
- Northrop Grumman Innovation Systems
- Vascular Solutions Inc.
- ZOLL

## Mississippi

- Olin Corporation
- Thales Raytheon Systems

## Missouri

- Boeing
- Leonardo DRS
- Northrop Grumman
- Northrop Grumman Innovation Systems

## Montana

- Nomad GCS

## Nevada

- Sierra Nevada Corporation
- US Ordnance

## New Hampshire

- BAE Systems



- L3 Warrior Sensor Systems
- Optics 1
- Sig Sauer Inc.

#### **New Jersey**

- Acrow Bridge
- Airborne Systems North America
- AMT
- Bethel Industries
- Booz Allen Hamilton
- L3 Communication Systems
- MITRE
- Tel-Instrument Electronics Corp.
- ViaTech Systems, Inc.

#### **New Mexico**

- Raytheon Missile Systems

#### **New York**

- ADSI
- Avox Systems
- Buffalo Turbine
- Carter Enterprises, LLC
- General Dynamics Information Technology
- Harris
- IBM
- L3 Communication Systems
- Laerdal Medical
- Lockheed Martin
- Lockheed Martin Rotary and Mission Systems
- Neomatrix Therapeutics
- Oculogica

- Remington Arms Co. Inc.
- SRCTec, LLC
- State University of New York
- Watervliet Arsenal

#### **North Carolina**

- Chemring Sensors & Electronic Systems
- Daimler Trucks North America LLC/Freightliner
- Humacyte, Inc.
- Isometrics, Inc.
- KDH Defense Systems
- PPD
- Redhat

#### **Ohio**

- AlphaMicron
- BAE Systems
- Battelle Memorial Institute
- HDT
- Joint Systems Manufacturing Center
- L3 Fuzing and Ordnance Systems
- Mil-Mar Century, Inc.
- STERIS

#### **Oklahoma**

- Choctaw Manufacturing Defense Contractors
- CymSTAR, LLC
- McAlester Army Ammunition Plant

#### **Oregon**

- Daimler Trucks North America LLC/Freightliner
- Vigor Works LLC

#### **Pennsylvania**

- Action Manufacturing
- BAE Systems
- Boeing
- Fidelity Technologies Corporation
- General Dynamics Ordnance and Tactical Systems
- Gentex Corp.
- Infracan
- Kongsberg Defense & Aerospace
- Letterkenny Army Depot
- Neurokinetic
- POCAL Industries, Inc.
- Tobyhanna Army Depot

#### **Rhode Island**

- General Dynamics Information Technology

#### **South Carolina**

- Caterpillar, Inc.
- Critical Solutions International, Inc.
- Fabrique National Manufacturing, LLC
- FN America LLC

#### **Tennessee**

- Barrett Firearms Manufacturing Inc.
- Holston Army Ammunition Plant

#### **Texas**

- Airbus Helicopter, Inc.
- Arcos Medical, Inc.
- AT&T
- BAE Systems
- Day & Zimmermann-Lone Star
- Dell
- Elbit Systems of America
- King Aerospace
- L3 Aerospace Systems
- Leonardo DRS
- Lockheed Martin
- Lockheed Martin Missiles and Fire Control
- Nanohmics
- Northrop Grumman Technology Services
- Potomac Fusion
- Raytheon
- Ready One
- Red River Army Depot
- Southeastern Computer Consultants, Inc.
- Southwest Research Institute
- Thales Raytheon Systems

#### **Utah**

- BioFire Defense, LLC
- L3 Communication Systems – West
- L3 Technologies
- Visionary Products, Inc.

#### **Vermont**

- General Dynamics

# Contractors by State

- General Dynamics Ordnance and Tactical Systems
- Human Biomed Inc.
- Revision Military Ltd.
- Tri-Tech USA, Inc.

## Virginia

- Adams Communications & Engineering Technology
- Aimpoint Inc.
- Alion Science and Technology
- BAE Systems
- Bechtel
- Bowhead
- Bowhead Logistics Solutions
- CACI
- Chemring Sensors & Electronic Systems
- DynCorp International
- Eagle Industries
- Entwistle
- General Dynamics
- General Dynamics Information Technology
- General Dynamics Mission Systems
- Harris
- Heckler and Koch Defense Inc.
- IAP Inc.
- IBM
- KGS
- Leidos
- Leonardo DRS
- Luna Innovations Inc.
- ManTech

- Northrop Grumman
- Northrop Grumman Innovation Systems
- PD Systems
- PM Ground Soldier
- Raytheon
- Raytheon Intelligence, Information and Services
- Vision Ability Execution, Inc.
- Zeta Associates

## Washington

- Berg Company
- Fluke Corp.
- General Dynamics Ordnance and Tactical Systems
- InBios International, Inc.
- Microsoft

## West Virginia

- Leidos
- Northrop Grumman Innovation Systems

## Wisconsin

- AMTEC Corp.
- Case New Holland
- Oshkosh

## INTERNATIONAL CONTRACTORS

### Belgium

- Janssen

### Canada

- Abbott Point of Care
- Cangene Corporation
- General Dynamics Land Systems – Canada
- General Dynamics Ordnance and Tactical Systems
- Therapure Biopharma Inc.
- Valeant Pharmaceuticals International, Inc.

### Croatia

- DOK-ING

### Denmark

- Hydrema

### Israel

- Rafa

### Germany

- General Dynamics European Land Systems – Germany

### Sweden

- Saab Dynamics AB

### United Kingdom

- BAE Systems
- Pearson Engineering LTD
- Raytheon Missile Systems

# Points of Contact

## **Abrams Tank Upgrade — M1**

PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

## **Advanced Field Artillery Tactical Data System (AFATDS)**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Apache Attack Helicopter AH-64D/E**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Air and Missile Defense Planning and Control System (AMDPCS)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Air Defense Artillery (ADA) Targets**

PEO Simulation, Training and  
Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Air Soldier Systems (Air SS)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Ammunition — Medium Caliber**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Ammunition — Small Caliber**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Ammunition — Tank**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Armored Multi-Purpose Vehicle (AMPV)**

PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

## **Army Integrated Air and Missile Defense (IAMD)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Army Key Management Infrastructure (AKMI)**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Army Tactical Missile System (ATACMS)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Army Watercraft Systems (AWS)**

PEO Combat Support and Combat  
Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Artillery Ammunition**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Assault Breacher Vehicle (ABV)**

PEO Combat Support and Combat  
Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Assembled Chemical Weapons Alternatives (ACWA)**

PEO Assembled Chemical Weapons  
Alternatives  
8198 Blackhawk Road, Edgewood  
Area  
ATTN: SFAE-ACW-Z  
Aberdeen Proving Ground, MD 21010

## **Assured-Positioning, Navigation and Timing (A-PNT) — Dismounted**

PEO Intelligence, Electronic Warfare  
and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

## **Assured Positioning Navigation and Timing (A-PNT) — Mounted/ Anti-Jam Antenna System (AJAS)**

PEO Intelligence, Electronic Warfare  
and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

# Points of Contact

## **Aviation Combined Arms Tactical Trainer (AVCATT)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Battlefield Kitchen (BK)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Biometric Enabling Capability (BEC)**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

## **Black Hawk Utility Helicopter – UH/HH-60**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Bradley Fighting Vehicle Systems (BFVS) – M2/M3**

PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

## **Calibration Sets Equipment (CALSETS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Call For Fire Trainer (CFFT) Immersive System**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Call For Trainer, Increment III (CFFT III)**

PEO Simulation, Training, and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Camel II Unit Water Pod System**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Chinook – CH-47F**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Chemical Biological Protective Shelter (CBPS) – M8E1**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits and Outfits (CBRN DR SKO)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Close Combat Tactical Trainer (CCTT)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Combat Service Support Communications (CSS Comms)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

## **Combat Trauma and Acute Rehabilitation (CTAR)**

U.S. Army Medical Research and Materiel Command  
810 Schreider Street  
Fort Detrick, MD 21702

## **Common Bridge Transporter (CBT)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Common Hardware Systems (CHS)**

PEO Command, Control, Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

**Common Missile Warning System (CMWS), Advanced Threat Detection System (ATDS), Laser Detection System (LDS), Modernized Radar Warning Receiver (MRWR), Advanced Threat Infrared Countermeasures (ATIRCM), and Common Infrared Countermeasure (CIRCM) programs**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Common Remotely Operated Weapon Station (CROWS)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Detrick, MD 21702

**Common Robotic System-Individual (CRS(I))**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Communications Security (COMSEC)**

PEO Command, Control, Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

**Counterfire Target Acquisition Radar – AN/TPQ-53**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Counter-Rocket, Artillery, Mortar (C-RAM) Intercept Land-based Phalanx Weapon System (LPWS)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Defense Enterprise Wideband SATCOM Systems (DEWSS)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

**Distributed Common Ground System-Army (DCGS-A)**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Early Entry Fluid Distribution System (E2FDS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Engagement Skills Trainer (EST) II**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

**Enhanced Medium Altitude Reconnaissance and Surveillance Systems (EMARSS)**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

**Enhanced Night Vision Goggle (ENVG)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

**Enhanced Night Vision Goggle – Binocular (ENVG-B)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

**Excalibur Precision 155 mm Projectiles**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

**Expeditionary Water Packaging System (EWPS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

# Points of Contact

## **Family of Engineer Combat and Construction Sets (ECACS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Family of Medium Tactical Vehicles (FMTV)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Family of Weapon Sights – Crew Served (FWS-CS)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Family of Weapon Sights – Individual (FWS-I)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Family of Weapon Sights – Sniper (FWS-S)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Fixed Wing**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Force Provider Expeditionary (FPE)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Forward Area Air Defense Command and Control (FAAD C2)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Future Vertical Lift Family of Systems**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **General Fund Enterprise Business Systems (GFEBs)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

## **Global Combat Support System-Army (GCSS-Army)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

## **Gray Eagle Unmanned Aircraft System (UAS) – MQ-1C**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Ground Mobility Vehicle (GMV)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Guardrail Common Sensor (GRCS)**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Guided Multiple Launch Rocket System (GMLRS) Dual-Purpose Improved Conventional Munition (DPICM)/Unitary/Alternative Warhead**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Handheld, Manpack and Small Form Fit (HMS)**

PEO Command, Control and Communications – Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Heavy Equipment Transporter System (HETS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT Extended Service Program (ESP)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**HELLFIRE Family of Missiles**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**High Mobility Artillery Rocket System (HIMARS) – M142**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**High Mobility Engineer Excavator (HMEE) I and III**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**High Mobility Multipurpose Wheeled Vehicle (HMMWV)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Homestation Instrumentation Training System (HITS)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

**Husky Mounted Detection System (HMDS)**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Hydra-70 2.75 Inch Rocket Systems**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Improved Environmental Control Units (IECU)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Improved Ribbon Bridge (IRB)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Improved Target Acquisition System (ITAS)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Indirect Fire Protection Capability (IFPC) Increment 2 – Intercept Block 1**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Installation Information Infrastructure Modernization Program (I3MP)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

**Instrumentable-Multiple Integrated Laser Engagement System (I-MILES)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

**Integrated Family of Test Equipment (IFTE)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Integrated Personnel and Pay System-Army (IPPS-A)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

**Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

**Javelin**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Joint Air-to-Ground Missile (JAGM)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Joint Assault Bridge (JAB)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

# Points of Contact

## **Joint Battle Command-Platform (JBC-P)**

PEO Command, Control, Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Joint Biological Tactical Detection System (JBTDSD)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Chemical Agent Detector (JCAD) – M4A1**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Effects Model (JEM) 1 and 2**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Effects Targeting System (JETS) Target Location Designation System (TLDS)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Joint Land Component Constructive Training Capability (JLCCTC)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Joint Light Tactical Vehicle (JLTV)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Joint Personal Dosimeter - Individual (JPD-IND)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Precision Airdrop System (JPADS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Joint Service Aircrew Mask - Rotary Wing (JSAM – RW) MPU-5**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Service Equipment Wipe (JSEW)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Service General Purpose Mask (JSGPM) – M-50/M-51**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Tactical Ground Station (JTAGS)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Joint Service General Purpose Mask (JSGPM) M-50/M-51**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Warning and Reporting Network (JWARN) 1**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Joint Warning and Reporting Network (JWARN) 2**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Lakota Light Utility Helicopter (LUH) – UH-72A**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

## **Laser Target Locator Module 2 (LTLM 2)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060



**Light Capability Rough Terrain Forklift (LCRTF)**  
PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Lightweight 155 mm Howitzer System (LW155)**  
PEO Ammunition  
SFAE-AMO, PEO Ammunition Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

**Lightweight Counter Mortar Radar (LCMR) – AN/TPQ-50**  
PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Lightweight Laser Designator Rangefinder (LLDR) AN/PED-1, AN/PED-1A and AN/PED-1B**  
PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

**Line Haul Tractor**  
PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Line of Communications Bridge (LOCB)**  
PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Load Handling System Compatible Water Tank Rack (Hippo)**  
PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**M3E1 Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS)**  
PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

**Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES) Improved Recovery Vehicle – M88A2**  
PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

**Man-portable Radiological Detections System (MRDS)**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Man Transportable Robotic System Increment II (MTRS Inc II)**  
PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Medical Countermeasure Systems (MCS) – Biological Defense Therapeutics (BDTX)**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Medical Countermeasure Systems (MCS) – Chemical Defense Pharmaceuticals (CDP)**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Medical Countermeasure Systems (MCS) – Diagnostics**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Medical Countermeasure Systems (MCS) – Joint Vaccine Acquisition Program (JVAP) and Bioscavenger**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Medical Countermeasure Systems (MCS) – Platforms for Rapid Integrated Solutions for Medical Countermeasures (PRISM)**  
JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

# Points of Contact

## **Medical Communications for Combat Casualty Care (MC4)**

PEO Enterprise Information Systems  
9350 Hall Road  
Bldg. 1445, Room 159  
Fort Belvoir, VA 22060

## **Medical Simulation Training Center (MSTC)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Medical Support Systems and Evacuation (MSSE)**

U.S. Army Medical Research and Materiel Command  
810 Schreider Street  
Fort Detrick, MD 21702

## **Medium Dozer — T-9**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Mine Protection Vehicle Family (MPVF), Mine Clearing Vehicle (MCV), Explosive Hazard Pre-Detonation (EHP)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Mobile Maintenance Equipment Systems (MMES)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Modular Fuel System (MFS)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Mortar Systems**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Motor Grader — 120M**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Multiple Launch Rocket System (MLRS) — M270A1**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Nett Warrior (NW)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Neurotrauma and Psychological Health (NPH)**

U.S. Army Medical Research and Materiel Command  
810 Schreider Street  
Fort Detrick, MD 21702

## **Next Generation Chemical Detector (NGCD)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **Next Generation Squad Weapons (NGSW)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) — Stryker Sensor Suites**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

## **One Semi-Automated Force (OneSAF)**

PEO Simulation, Training and Instrumentation  
12211 Science Drive  
Orlando, FL 32826

## **Paladin Family of Vehicles (FOV) — M109A6 Paladin/M992A2 FAASV/M109A7 SPH/M992A3 CAT and Extended Range Cannon Artillery (ERCA)**

PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

**Palletized Load System (PLS) and PLS Extended Service Program (ESP)**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**PATRIOT Advanced Capability-3 (PAC-3)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Persistent Surveillance Systems–Tethered (PSS-T)**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Pharmaceutical Systems**

U.S. Army Medical Research and Materiel Command  
810 Schreider Street  
Fort Detrick, MD 21702

**Precision Guidance Kit (PGK)**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

**Precision Strike Missile (PrSM)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Prophet**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Pseudolites**

PEO Intelligence, Electronic Warfare and Sensors  
6585 Surveillance Loop  
Building 6002  
Aberdeen Proving Ground, MD 21005

**Radiological Detection System (RDS)**

JPEO for Chemical, Biological, and Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Range Radar Replacement Program (RRRP)**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Raven Small Unmanned Aircraft System (SUAS) – RQ-11B**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

**Render Safe Sets, Kits & Outfits (RS SKO)**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

**Robotic Mine Flail – M160**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Rocket, Artillery, Mortar (RAM) Warn**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Route Clearance Interrogation System (RCIS) Type 1**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Scraper – 621G**

PEO Combat Support and Combat Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

**Screening Obscuration Module (SOM)**

JPEO for Chemical, Biological, Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010

**Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)**

PEO Command, Control, Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

**Sentinel Aerial Surveillance Radar – AN/MPQ-64**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

**Shadow Tactical Unmanned Aircraft System (TUAS) – RQ-7Bv2**

PEO Aviation  
Bldg 5681 Wood Road  
Redstone Arsenal, AL 35898

# Points of Contact

## **Small Arms – Crew Served Weapons**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Small Arms – Individual Weapons (IW)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Small Arms – Precision Weapons (PW)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Soldier Protection System (SPS)**

PEO Soldier  
5901 Putman Road  
Building 328T  
Fort Belvoir, VA 22060

## **Spider – Command Destruct Networked Command Munition Dispensing Set: Increment 1A**

PEO Ammunition  
SFAE-AMO, PEO Ammunition  
Building 1, Buffington Road  
Picatinny Arsenal, NJ 07806

## **Stryker Family of Vehicles (FOV)**

PEO Ground Combat Systems  
6001 E. 11 Mile Road  
Warren, MI 49397

## **Tactical Mission Command (TMC)**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Tactical Network Transport**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Tactical Network Transport On-the-Move**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Test Equipment Modernization (TEMOD)**

PEO Combat Support and Combat  
Service Support  
6501 E. 11 Mile Road  
SFAE-CS  
Warren, MI 49397

## **Transportable Tactical Command Communications (T2C2)**

PEO Command, Control,  
Communications–Tactical  
6590 Reconnaissance Street  
Building 6010  
Aberdeen Proving Ground, MD 21005

## **Tube-Launched, Optically Tracked, Wireless-Guided (TOW) Missiles**

PEO Missiles and Space  
5250 Martin Road  
Redstone Arsenal, AL 35898

## **Unified Command Suite (UCS)**

JPEO for Chemical, Biological, and  
Radiological and Nuclear Defense  
Aberdeen Proving Ground  
Edgewood, MD 21010









**PREPARED BY:**

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