



WEAPON SYSTEMS 2011



AMERICA'S ARMY:
THE STRENGTH OF THE NATION

**DESIGN, DEVELOP,
DELIVER, DOMINATE.
SOLDIERS ARE
THE DECISIVE EDGE.**



Dear Reader:

The Army Acquisition, Logistics and Technology community is charged to perform a vital mission to **provide our Soldiers a decisive advantage in any mission by developing, acquiring, fielding, and sustaining the world's best equipment and services and leveraging technologies and capabilities to meet current and future Army needs.** Soldiers are the decisive edge. We provide them with leading-edge technologies and advanced capabilities to dominate in our current operations across the battlespace while simultaneously preparing to respond decisively to future threats.

This annual publication describes how we are accomplishing our mission and highlights our major acquisition programs. You will learn what each program is designed to achieve for our Soldiers and the program's status. Furthermore, you will learn about the contractors involved, teaming arrangements, and critical interdependencies with other programs and fielded systems. In addition, this handbook augments several key publications that characterize the strategic context for our work, including the *2010 Army Posture Statement*, the *2010 Army Modernization Strategy*, and our *Science and Technology Master Plan*.

Our comprehensive modernization program reflects an overarching vision to meet the equipping demands of our Soldiers by developing and fielding an affordable and interoperable mix of the best equipment available for success in both today's and tomorrow's full spectrum military operations. It encompasses strategic relevance, complexity, innovation, and interconnectedness of the products and systems that we are delivering to our men and women in uniform. We are also working to institutionalize wartime innovations to better enable success in today's wars while ensuring that our forces are prepared for a complex future.

America's Soldiers are our most precious resource. They are at the center of all that we accomplish and the focus of all our plans. We are dedicated to meeting their needs around the clock and around the world. As you reference this publication and learn more about the Acquisition, Logistics and Technology community and our major acquisition programs, you will understand that our top priority is to ensure America's **Soldiers are the decisive edge.** We will never let them down.



Malcolm R. O'Neill

Assistant Secretary of the Army
(Acquisition, Logistics and Technology)
and Army Acquisition Executive



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How to Use this Book

Highlighted rectangles indicate investment component

Mission statement:
How the system benefits warfighters, combatant commanders, and support personnel

All systems are in alphabetical order

System interdependencies

310	Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles	311
<p>INVESTMENT COMPONENT</p> <p>Modernization</p> <p>Reconfiguration</p> <p>Maintenance</p>	<p>MISSION</p> <p>Provides long-range, heavy anti-tank and precision assault fire capabilities to Army and Marine forces.</p> <p>DESCRIPTION</p> <p>The Close Combat Missile System-Hoary (CCMS-B) TOW (Tube-Launched, Optically-Tracked, Wire-Guided) is a heavy anti-tank/precision assault weapon system, consisting of a launcher and a missile. The missile is six inches in diameter (cassid, 8.0 inches) and 49 inches long. The gunner defines the aim point by maintaining the sight cross hairs on the target. The launcher automatically steers the missile along the line of sight toward the aim point via a pair of control wires or a one-way radio frequency (RF) link, which links the launcher and the missile.</p> <p>TOW missiles are employed on the High Mobility Multipurpose Wheeled Vehicle (HMMWV) mounted Improved Target Acquisition System (ITAS). HMMWV-mounted M230A4 launcher (TOW 2), Stryker Anti Tank Guided Missile (ATGM) Vehicles, and Bradley Fighting Vehicle (A2A2000A200Y</p> <p>A3) within the Infantry, Stryker, and Heavy Brigade Combat Teams, respectively. TOW missiles are also employed on the Marine HMMWV-mounted ITAS, HMMWV-mounted M230A4 launcher (TOW 2), LAV ATGM Vehicle, and AH1W Cobra attack helicopter. TOW is also employed by allied nations on a variety of ground and airborne platforms.</p> <p>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 has an advanced counteractive protection system. The launcher capability and detects all current and projected threat armor systems. The TOW 2B Aero fires over the target (offset above the gunner's aim point) and uses a laser profilometer and magnetic sensor to detect and fire two downward directed, explosively-formed penetrator warheads into the target. The TOW 2B Aero's missile weight is 493 pounds (cassid, 65 pounds).</p> <p>The TOW Breaker Buster is optimized for performance against urban structures, earthen bunkers, field</p> <p>fortifications, and light-skinned armor threats. The missile impact is at the aim point. It has a 6.25 pound, 6-inch diameter high explosive, bulk charge warhead, and its missile weight is 45.2 pounds. The TOW BB has an impact sensor (rock switch) located in the main charge ogive and a pyrotechnic detonation delay to enhance warhead effectiveness. The FB38 109 explosive is housed in a thick casing for maximum performance. The TOW BB can produce a 21- to 24 inch diameter hole in an 8-inch thick, double-reinforced concrete wall at a range of 65 to 3,750 meters.</p> <p>SYSTEM INTERDEPENDENCIES</p> <p>M112/110F HMMWV, Stryker ATGM, ITAS</p> <p>PROGRAM STATUS</p> <ul style="list-style-type: none"> • Current: TOW 2B and BR RF in production <p>PROJECTED ACTIVITIES</p> <ul style="list-style-type: none"> • FY11-FY15: TOW MY 	<p>FOREIGN MILITARY SALES</p> <p>The TOW weapon system has been sold to more than 43 allied nations over the life of the system.</p> <p>CONTRACTORS</p> <p>TOW 2B Aero and TOW BB</p> <p>Prime: Raytheon Missile Systems (Tucson, AZ) Control Actuator, Shoulder Actuator: Moog (Salt Lake City, UT)</p> <p>Warheads: Aerjet General (Secaucus, NJ)</p> <p>Oryscope: B&E Systems (Chester, CT)</p> <p>Sensor (TOW 2B only): Thales (Birmingham, UK)</p> <p>Launch Motor: ATK (Houston, TX)</p> <p>ATK (Rocket Core, WY) Machined/Fabricated Parts: Kluge (Spanish Fork, UT)</p>
ACQUISITION PHASE	Production & Deployment	WEAPON SYSTEMS 2011
UNITED STATES ARMY		

Foreign military sales

Contractor information

Contractor locations are highlighted

Highlighted rectangles indicate acquisition phase

WHAT ARE SYSTEM INTERDEPENDENCIES?

The purpose of the **System Interdependencies** section is to outline which other weapon systems or components (if any) the main system works in concert with or relies upon for its operation. This year we have broken down the interdependencies to “In this Publication,” a listing of systems in this 2011 edition, and “Other Major Interdependencies,” systems that are not included in this handbook.

WHAT ARE INVESTMENT COMPONENTS?

Modernization programs develop and/or procure new systems with improved warfighting capabilities.

Recapitalization programs rebuild or provide selected upgrades to currently fielded systems to ensure operational readiness and a zero-time, zero-mile system.

Maintenance programs include the repair or replacement of end items, parts, assemblies, and subassemblies that wear out or break.

WHAT ARE ACQUISITION PHASES?

Technology Development refers to the development of a materiel solution to an identified, validated need. During this phase, the Mission Needs Statement (MNS) is approved, technology issues are considered, and possible alternatives are identified. This phase includes:

- Concept exploration
- Decision review
- Component advanced development

Engineering & Manufacturing Development is the phase in which a system is developed, program risk is reduced, operational supportability and design feasibility are ensured, and feasibility and affordability are demonstrated. This is also the phase in which system integration, interoperability, and utility are demonstrated. It includes:

- System integration
- System demonstration
- Interim progress review

Production & Deployment achieves an operational capability that satisfies mission needs. Components of this phase are:

- Low-rate initial production
- Full-rate production decision review
- Full-rate production and deployment

Operations & Support ensures that operational support performance requirements and sustainment of systems are met in the most cost-effective manner. Support varies but generally includes:

- Supply
- Maintenance
- Transportation
- Sustaining engineering
- Data management
- Configuration management
- Manpower
- Personnel
- Training
- Habitability
- Survivability
- Safety, Information technology supportability
- Environmental management functions

Because the Army is spiraling technology to the troops as soon as it is feasible, some programs and systems may be in all four phases at the same time. Mature programs are often only in one phase, such as operations and support, while newer systems are only in concept and technology development.

For additional information and definitions of these categories and terms, please see the Glossary.



UNITED STATES ARMY

**THE AMERICAN SOLDIER IS OUR PRIORITY
AND MOST PRECIOUS ASSET...**





ASA (ALT)

MISSION

Provide our Soldiers a decisive advantage in any mission by developing, acquiring, fielding, and sustaining the world's best equipment and services and leveraging technologies and capabilities to meet current and future Army needs.

VISION

A highly innovative organization of dedicated professionals transforming the Army with integrated Acquisition, Logistics, and Technology capabilities to provide Soldiers a decisive advantage and win our nation's wars!

STRATEGIC CONTEXT

We face a global security environment characterized by persistent conflict against enemies determined to disrupt our Soldiers' mission. Our goal is to do everything we can to provide the best equipment deliver Soldiers to the battlefield for a range of missions. They need the fire and maneuver capabilities that allow them to communicate, engage, and disengage. Our troops must continue to operate with confidence in their equipment, operational capabilities, communication, enhanced situational awareness, and force protection. We want our Soldiers to return from every operation and engagement.

Modernizing the Army will help to counter rapidly emerging threats that change the nature of battlefield operations. This is accomplished by capturing lessons learned from the range of combat to include close combat and improved explosive devices (IEDs). The Army must develop and field new capabilities or sustain, improve, or divest current systems based on operational value, capabilities shortfalls, and available resources. These decisions are based on the principles identified in the Army's Modernization and Equipping Strategies and are influenced by the results of detailed deliberations within the Army's maturing Capability Portfolio Reviews (CPRs). These, in turn, will be influenced by the requirement for Operational Adaptability contained in the 2010 Army Operating Concept.

Decentralized operations are required within the context of Mission Command. The complex and uncertain strategic environment dictates the need for capabilities and weapon systems that provide the essential qualities of adaptability and versatility, to operate in current and future environments across the spectrum of conflict.

Lessons learned from the current operating environment and a capability-based assessment highlight that some current capabilities do not adequately counter the current threats and lack the capability needed to adequately meet the operational requirements of future warfighting concepts and threats.



SOLDIERS ARE THE DECISIVE EDGE

The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA (ALT)) is deeply invested in developing, delivering and sustaining the best weapons technology available to assist Soldiers in executing the myriad of operational requirements in a fluid and volatile strategic environment. With the Soldier as the key focus, ASA (ALT) seeks to equip Soldiers with the best in cutting-edge technology and effectively manage up to 650 programs that are vital to success in combat.

ASA (ALT)'s focus is closely aligned with the Army Modernization Strategy, which outlines a series of key goals—such as the continued development of new technologies engineered to provide Soldiers with the decisive edge in battle. These technologies in development span a range of new capability to include robots, sensors, Unmanned Aircraft Systems (UAS), missiles and missile guidance systems, emerging combat platforms such as the Ground Combat Vehicle, and key technologies such as the Army's maturing network, designed to connect Soldiers, sensors, and multiple nodes to one another in real-time to improve operational effectiveness across the full spectrum of combat operations.

At the same time, the modernization strategy places a premium on finding affordable solutions, finding and applying efficiencies designed to maximize the value of dollars spent on development, and more rapidly delivering greater technological capability within an increasingly constrained fiscal environment. To this end, the Army is developing an Affordable Modernization Strategy that seeks to develop needed systems with a mind to budgetary responsibility. Part of this involves synchronizing and integrating programs, platforms, and systems in relation to one another from a system-of-systems point of view in order to maximize interoperability, reduce redundancy, and prioritize an acquisition strategy which correctly organizes and develops technologies as interconnected systems.



- ASA (ALT) is working vigorously to implement guidance from Defense Secretary Robert Gates, which calls upon the services to sustain current force structure and needed modernization by achieving two to three percent real growth. The current and planned base defense budget has steady but modest growth of one percent per year, necessitating innovative processes and doing more, without more.
- To make up the difference and preclude reductions in needed military capability, the difference of one to two percent per year will be made up elsewhere across the Department of Defense and the services. The goal is to significantly reduce excess overhead costs and apply savings to force structure and modernization.
- Part of this effort includes the application of Lean Six Sigma methodologies and Continuous Process Improvement guidelines.

Part of this modernization process—emphasizing this system-of-systems engineering and validation of core-required capabilities—hinges upon the results of the Army's **Capability Portfolio Reviews (CPRs)**. These CPRs have taken up a detailed examination of groups of technologies and systems from a portfolio perspective—with a mind to perceiving how they relate to one another and the full capability perspective of the operating force. A key emphasis of the CPRs is to identify areas where efficiencies can be increased and redundancies can be eliminated. The reviews are grounded in the reality that the defense budget will not increase nor be sustained at the levels it has in recent years, therefore ushering in an anticipated more constrained budget environment in coming years.

The CPRs include Aviation, Network, Radios, Precision Fires, Air and Missile Defense, Tactical Wheeled Vehicles, Combat Vehicle Modernization, Soldier Systems, Engineer Mobility/Counter-mobility, Intelligence Surveillance Reconnaissance (ISR), Training Ammunition, Software/Hardware, and Watercraft.

The CPRs are also aimed at informing the Army's overarching investment strategy that seeks to effectively manage taxpayer dollars with a mind to providing the best technologies to our Soldiers while maintaining affordability. For instance, the Precision Fires CPR determined that the Army no longer has a need to develop the Non-Line-of-Sight Launch System (NLOS-LS) because it already has similar capabilities in its arsenal. As a result of the CPR, the requirement for the NLOS-LS was cancelled in an effort to remove redundancy while still developing the best capabilities for Soldiers in combat.

The goal of the CPRs is to make the best use of investment dollars and continue to serve Soldiers while being responsible stewards of taxpayer money and constrained National resources.



ENABLING ARMY MODERNIZATION SO OUR SOLDIERS DOMINATE TODAY AND TOMORROW

ASA (ALT) is developing technologies with a specific mind to the ever-changing contingencies in today's combat environment. Soldiers are the decisive edge in a wide range of potential conflict scenarios ranging from peacekeeping and nation building to fighting conventional, irregular, or hybrid enemies. Army Doctrine calls upon the force to be prepared for what is called full-spectrum operations, meaning they must be equipped for all potential scenarios to include high-, medium-, and low-intensity conflict. The Army's acquisition strategy and weapons platforms seek to accommodate this operational reality and prepare Soldiers to be adaptive to an entire range of potential operations.



For this reason, acquisition processes need to be synchronized with the requirements process to best identify needs and capability gaps experienced by Soldiers in battle today; ASA (ALT) will continue to work closely with the Army's Training and Doctrine Command (TRADOC) to ensure that the requirements development process is deeply interwoven with weapons systems modernization. There are times when systems in development need to change, adjust, and tailor their requirements to meet with current capabilities and urgent needs coming from combatant commanders in theater. This process is one that requires continuous evaluation and reassessment throughout the weapons system development process.

Also for this reason, the Army's acquisition strategy is designed to be tailorable to changing threats. The Army seeks to train, develop and equip Soldiers who are able to stay in front of an adaptive, fast-changing adversary. By emphasizing the best design, delivery, and sustainment of Army equipment, ASA (ALT) will remain focused on harnessing scientific innovations in order to identify and develop the most promising new technologies.



THE ARMY MODERNIZATION STRATEGY

ASA (ALT) seeks to ensure that America's Army is the world's preeminent land power by equipping and sustaining Soldiers in a timely and responsible fashion with the best technologies available. The Army's Modernization Strategy is squarely aimed at accomplishing this goal; ASA (ALT) is constantly working to identify and develop emerging technologies that have the potential to strengthen Soldiers. As a result, continued scientific and technological innovation is a constant Army focus; the Army works to preserve and build upon its relationships with its partners in academia and industry designed to enhance the learning curve and advance technology for the benefit of Soldiers. A key focus of the modernization effort is the need to prepare Soldiers for the fast pace of change on today's battlefield by keeping abreast of the latest in scientific discovery.

A centerpiece of this strategy is the recognition that many of the systems in this handbook are interdependent, meaning they rely upon and reinforce one another. For this reason, ASA (ALT) approaches acquisition from a system-of-systems point of view that places a premium upon looking at how technologies work in tandem as part of a larger system. Modernization and development of new capability must accommodate this system-of-systems approach.

INTEGRATING THE BRIGADE COMBAT TEAM

Part of the Army's modernization effort hinges upon its continued transformation from the Cold War division structure to smaller, deployable Brigade Combat Teams (BCTs); as part of its modular design approach, the Army is moving toward a force structure which identifies units as BCTs—designed and composed as they are prepared to deploy. Described as part of the Army Force Generation (ARFORGEN) cycle, the BCTs are identified as effective combat units to be modernized.

To this end, the Army is preparing a series of new technologies for its Infantry Brigade Combat Teams—equipping them with robots, sensors and UAS systems all networked together using software programmable radio and satellite technologies. The idea is for the dismounted Soldier—the centerpiece of Army modernization—to have the ability to share more information faster, further and more efficiently across the force in real-time using new sensors and network technology.

Early Infantry Brigade Combat Team (E-IBCT) modernization is a term identifying the Army's emphasis on BCT transformation; using the battlefield network as its core, E-IBCT technologies will provide Soldiers with an unprecedented battlefield connectivity. E-IBCT technologies, which include the Small Unmanned Ground Vehicle (SUGV) robot, the Class I UAS, the Urban and Tactical Unattended Ground Sensors, and the first increment of the Army's network are slated to deploy with forces in 2011.



THE NETWORK AS THE CENTERPIECE OF ARMY MODERNIZATION

The idea of the Army network is to connect multiple echelons and be able to move information from the dismounted Soldier on the tactical edge, up to the platoon and company level, and all the way up to higher headquarters. The information travels through a terrestrial network able to send voice, video, data, and imagery through Joint Tactical Radio Systems (JTRS) software programmable radios using high bandwidth waveforms such as Soldier Radio Waveform (SRW) and Wideband Networking Waveform (WNW). Information sent and received by the terrestrial layer is connected to Warfighter Information Network–Tactical (WIN-T), a satellite network able to send information over long distances using fixed nodes as well as vehicles on-the-move.

The Army’s “network” can use the terrestrial layer in addition to beyond line-of-sight satellite connections; the line-of-sight radio connections can be extended through use of an aerial tier which places Rifleman Radios on aircraft such as UH-60 Black Hawks, AH-64 Apaches and Shadow UAS. With the aerial tier, units do not have to place a relay team on the top of a mountain ridge or reposition a command post to ensure communication between ground units over extended distances.

For instance, the Army’s network will make it possible for Soldiers in a vehicle on-the-move to view and share real-time feeds from a nearby robot, ground sensor, or UAS—instantaneously providing them combat-relevant information and enabling them to share that information with other units on the move, dismounted Soldiers, and higher echelons of the force.



MRAP FORCE PROTECTION SAVING LIVES

Part of this equation involves continued investment in proven technologies such as Mine Resistant Ambush Protected (MRAP) vehicles. MRAPs are engineered with a blast-debris deflecting V-shaped hull and an armored capsule to protect Soldiers from roadside bombs and IEDs. The MRAPs, and the lighter weight, more mobile MRAP All Terrain Vehicles (M-ATV) have proven their ability to save Soldiers’ lives in combat.

As a result of their performance in battle and proven value to Soldiers, MRAPs will remain a vital part of the Army’s Tactical Wheeled Vehicle fleet for years to come. MRAPs will be assigned to specific BCTs so that they are available to perform key functions such as route clearance and Soldier transportation when needed.

Also, MRAPs have been outfitted with Network Integration Kits (NIK)—giving them the latest in Army networking technology. Using software-programmable radio such as JTRS and satellite technology such as WIN-T, the networked MRAPs are able to share real-time information such as sensor feeds from nearby robots and UAS across the force while on the move. This new capability—validated in technical field tests and network exercises—connects units at the battalion and company levels and below to one another and to higher headquarters in real-time using the NIKs and Force XXI Battle Command Brigade and Below (FBCB2) display screens.

MRAPs and other vehicles in the Army fleet will take advantage of lighter weight armor composites as they become available. The Army Research Laboratory is testing combinations of materials which can outperform traditional steel at a much lighter weight; these technologies will spin out into the force as they become available.



“The Network is the singularly most important program to the Army.”

GENERAL GEORGE W. CASEY, JR.
U.S. ARMY CHIEF OF STAFF



A prime example of the search for efficiencies within major programs, the Department of Defense, Army, and Marine Corps have succeeded in achieving a \$2 billion cost avoidance on the MRAP program by applying systems engineering techniques and Lean Six Sigma practices to the program. The thrust of the cost avoidance was achieved through several key methodologies; MRAP program managers streamlined and coordinated the requirements process to better determine which vehicles to upgrade and developed a database portal aimed at sharing key information across the 25,000-strong fleet of vehicles.

JLTV DEVELOPMENT: PERFORMANCE, PROTECTION, AND PAYLOAD

The Joint Light Tactical Vehicle, or JLTV, Technology Development phase industry teams have built government prototypes, engineering an unprecedented blend of mobility, payload capacity, and survivability—building a light tactical vehicle that will withstand IED attacks, drive quickly through diverse terrain, and transport beneath a CH-47 or CH-53 helicopter.

The Army-Marine Corps JLTV program will produce a new fleet of tactical vehicles that can support a range of mission sets. The Army is developing a family of JLTV vehicles and companion trailers that can be used in any operational environment—low- to high-intensity conflict, major combat operations, or hybrid warfare. Following a Milestone C decision in 2013, the Army plans to purchase 55,000 JLTVs and the Marines plan to buy 5,500. Full production is slated for 2015.

Currently, there are three payload categories that cover ten JLTV configurations. Category A, the smallest category, will have a combat transport weight of 14,322 pounds and supports a 3,500-pound payload while armored. Category B is somewhat larger, supporting a 4,500-pound payload while armored; Category C supports a 5,100-pound payload while armored. The Category C vehicles will also address shelter and ambulance requirements. The entire JLTV family is transportable by tactical assets (CH-47, CH-53, C-130), greatly reducing the burden on strategic assets such as the limited quantity of C-17 and C-5 aircraft.

Other requirements include building a vehicle that can generate 30 kilowatts of exportable power, drive when tires are shot, accommodate scalable armor solutions and extra spall liner, and embedded diagnostics.



PAVING THE WAY FOR THE GROUND COMBAT VEHICLE

The Army plans to develop, design, build, and deploy a Ground Combat Vehicle Infantry Fighting Vehicle (IFV) as a centerpiece of its combat vehicle modernization strategy. The Army requires an IFV that can deliver a squad to the battlefield in a full-spectrum environment under armor. No single vehicle available today can provide the necessary combination of capabilities planned for the Ground Combat Vehicle. Plans for the vehicle include development of a system that has abilities equivalent to or surpassing the mobility of the Stryker and the protection of an MRAP.

Based on lessons learned in over eight years of war, the Army has confirmed that the existing fleets, including the Bradley IFV, cannot provide the needed combination of space, weight and power, advanced force protection, and mobility needed to prevail in 21st century full-spectrum environments.

The Ground Combat Vehicle will be able to maneuver in urban environments, withstand IED attacks, and house the state-of-the-art in vehicle computing technology—all while delivering a squad to the battlefield under the best armor protection available.

“If we are to preserve the Army that we have built so painstakingly over the last eight years, we, the civilians and military leadership of the Department, must fundamentally change the way we do business.”

GENERAL GEORGE W. CASEY, JR.
U.S. ARMY CHIEF OF STAFF

TRANSFORMING ARMY ACQUISITION AND BUSINESS PRACTICES

The Army remains sharply focused on finding ways to continually examine and improve the acquisition process with a mind to increasing efficiency. This approach includes a new, 120-day, Secretary of the Army-directed Army Acquisition Review, designed to take up and evaluate the entire range of acquisition practices to included funding, policy, processes, and major programs.

In addition, the Army is emphasizing Lean Six Sigma business practices in many of its programs. These are specific, business-proven methods aimed at finding way to streamline productivity and reduce overhead costs. Applying these methods recently resulted in a \$2 billion cost avoidance on the MRAP program because program managers found ways to consolidate and streamline vehicle upgrade requirements.

A system-of-systems approach is vital to these ongoing efforts to transform business practices; the Army must look at developing, managing, and acquiring technologies in the most efficient way possible, an approach which includes the need to understand the interdependencies between systems. There must be an emphasis upon maturing the capability to synchronize programs and integrate schedules, deliveries, and other developments across the acquisition process.

As a result of these and other practices, the acquisition community remains acutely aware of its need to further the transformation of its business efforts. These initiatives help the Army transform as an institution and ensure that the service provides the best value possible for the taxpayer and the Soldier—who is at the very center of these efforts.

COMMUNICATING AND COLLABORATING WITH INDUSTRY

The Army must continue to foster, harness, and develop its relationships with vital industry partners as a way to ensure the best possible development of new and emerging systems. With this as an organizing principle, ASA (ALT) has created a new industry outreach engagement program squarely focused on furthering partnerships with industry and facilitating constructive dialogue designed to achieve the best results for Soldiers in combat. Recognizing the importance of revitalizing industry engagement, the Army continues to nurture this outreach program, fostering and preserving strong relationships between the Army and its vital industry partners.

Recognizing that there are often circumstances where procurement sensitivities and ongoing competition may preclude the occasion to dialogue with industry about certain topics, there are nonetheless ample opportunities for positive, proactive, and constructive engagement with industry partners. While placing a premium upon the importance of properly defining the parameters for discussion with industry partners, ASA (ALT) seeks to foster an environment of open dialogue.



ASA (ALT) recently embarked upon a revitalized industry engagement program that brings leaders of industry together with key Army decision-makers in an effort to facilitate open and worthwhile conversations; both the Army and its industry partners stand to benefit from such an arrangement that recognizes the importance of proactive engagement. The rationale behind such an approach is grounded in the effort to minimize misunderstandings and “eleventh hour” reactions. This industry program is squarely aimed at working to anticipate future developments, recognizing and communicating industry trends, and identifying the evolution of key technologies that are maturing to the point where they can help Soldiers in combat.

ELIMINATING CHEMICAL WEAPONS

Achieving excellence in acquisition involves continuous stewardship and superb management of highly sensitive and visible programs for which ASA (ALT) has executive agent authority, such as the Nation’s chemical weapons disposal program.

The U.S. Army Chemical Materials Agency (CMA), using acquisition processes as its baseline, works with private industry, academia, and other interested policy and environmental stakeholders to eliminate America’s obsolete chemical weapons.

Overall, CMA has destroyed 78 percent of the nation’s obsolete chemical weapons stockpile and anticipates that it will reach 90 percent destruction by 2012.

CMA also responds to discoveries of non-stockpile chemical weapons and safely stores those weapons until their disposal. Moreover, CMA partners with the Federal Emergency Management Agency to prepare local communities to deal with potential emergencies involving those weapons.

PATH FORWARD

The Army is preparing for a strategic environment characterized by persistent conflict and the resilience of ruthless, determined, and adaptive adversaries. These challenges form the basis of our requirement to modernize. Continuous modernization is key to transforming Army capabilities and maintaining a technological advantage over our adversaries across the full spectrum of conflict. ASA (ALT) has received extraordinary funding support through wartime Overseas Contingency Operations funds, but they have only enabled us to sustain the current fight. ASA (ALT) looks forward to continued Congressional support to achieve its broad modernization goals.

The systems listed in this book are not isolated, individual products. Rather, they are part of an integrated system-of-systems investment approach designed to make the Army of the future able to deal successfully with the challenges it will face. Each system and capability is important. These systems represent today's investment in tomorrow's security—to ensure our Army successfully defends our Nation.

WEAPON SYSTEMS

LISTED IN ALPHABETICAL ORDER

2.75 Inch Rocket Systems (Hydra)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides air-to-ground suppression, smoke screening, illumination, and direct and indirect fires to defeat area materiel and personnel targets at close and extended ranges.

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.

Diameter: 2.75 inches

Weight: 23–27 pounds (depending on warhead)

Length: 55–70 inches (depending on warhead)

Range: 300–8,000 meters

Velocity: 700+ meters per second

Area suppression: No precision

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** Producing annual replenishment for training, theater combat expenditures, and war reserve requirements

PROJECTED ACTIVITIES

- **FY11:** Continue Hydra 70 production and safety, reliability, and producibility program activities

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

2.75 Inch Rocket Systems (Hydra)

FOREIGN MILITARY SALES

Hydra 70: Colombia, Japan, Kuwait, the Netherlands, Singapore, Thailand, and United Arab Emirates

CONTRACTORS

Prime System:

General Dynamics (Burlington, VT)

Grain:

Alliant Techsystems (Radford, VA)

Fin & Nozzle:

General Dynamics Ordnance and Tactical Systems (Anniston, AL)

Rocket Production:

General Dynamics Armament and Technical Products (Camden, AR)

Warhead Fuzes:

Action Manufacturing (Philadelphia, PA)

Warhead Flechette:

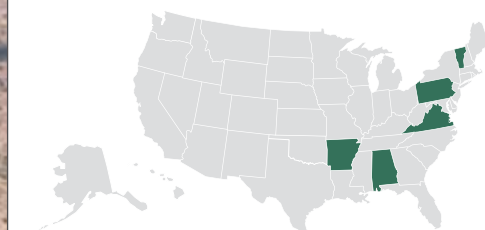
Penn United (Cabot, PA)

Fiber Containers:

Sonoco (Robesonia, PA)

Fastpack Refurbishment:

B&M Painting (Camden, AR)



Abrams Tank Upgrade (M1A2)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Closes with and destroys enemy forces on the integrated battlefield using mobility, firepower, and shock effect with lethality, survivability, and fightability necessary to defeat advanced threats.

DESCRIPTION

The Abrams tank upgrade includes two powerful variants, the M1A1 SA (Situational Awareness) and the M1A2 SEP (System Enhancement Program) version 2. The 1,500-horsepower AGT turbine engine, the 120mm main gun, and special armor make the Abrams tank particularly lethal against heavy armor forces.

M1A1 SA: Improvements include the Gunners Primary Sight (GPS) with improved thermal imaging capabilities of the new Block I 2nd generation forward-looking infrared (FLIR) technology.

Lethality improvements include the Stabilized Commander's Weapon Station (SCWS) and ballistic solution upgrades for the M829A3 kinetic and the M1028 canister rounds. Common Abrams modifications include Blue Force Tracking (BFT), which is a digital command and control system that gives Army commanders across the battlefield current information about their location relative to friendly forces; and the Power Train Improvement and Integration Optimization Program (TIGER engine and improved transmission), which provides more reliability, durability, and a single standard for the vehicle's power train. Survivability improvements include frontal armor and turret side armor upgrades.

M1A2 SEP v2: Upgrades include improved survivability, automotive power pack, computer systems, and night vision capabilities. Lethality improvements include Common Remotely Operated Weapon Station (CROWS) and ballistic solution upgrades for the M829A3 kinetic and the M1028 canister rounds. The M1A2 SEP v2 has improved microprocessors, color flat panel displays, improved memory capacity,

better Soldier-machine interface, and a new open operating system designed to run the Common Operating Environment (COE) software. Both the GPS and the Commander's Independent Thermal Viewer (CITV) on the M1A2 SEP tank include the improved thermal imaging capabilities of the new Block I second-generation FLIR technology. The M1A2 SEP has improved frontal and side armor for enhanced crew survivability. The M1A2 SEP is also equipped with battery based auxiliary power, Total InteGrated Engine Revitalization (TIGER), and an upgraded transmission for improved automotive reliability and durability.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

• **Current:** The 1st Cavalry Division; 4th Infantry Division; 3rd Armored Cavalry Regiment, 1st Brigade; 1st Armored Division; Army Prepositioned Stock 5 (Kuwait); and the Army National Guard's Regional Training Institute and Regional Training Site-Maintenance are equipped with the Abrams M1A2

SEP v2; 1st Infantry Division and 3rd Infantry Division are equipped with the Abrams M1A1 SA; Theater Sustainment Stock (Kuwait) outfitted with both M1A1SA and M1A2 SEP v2 tanks

• **Current:** Abrams production of M1A1 SA and M1A2 SEP v2 tanks continue for both the Active Army, Army National Guard (ARNG) and the Training and Doctrine Command to meet the Army's modularity goals by 2013

PROJECTED ACTIVITIES

• **FY11-12:** 3rd Infantry Division, 4th and 2nd Brigades, 1st Armored Division, 1st Brigade, 2nd Infantry Division, and 116th Heavy Brigade Combat Team, Idaho ARNG will be fielded with the Abrams M1A2 SEP v2 tank; M1A1 SA fielding continues to the 30th NC ARNG, 81st WA ARNG, 155th MS ARNG, 11th ACR, and Army Prepositioned Stock 4 (Korea)

• **FY11-12:** Continue M1A2 SEP v2 multi-year contract production

• **FY11-12:** Continue TIGER production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Abrams Tank Upgrade (M1A2)

FOREIGN MILITARY SALES

M1A1: Australia (59), Egypt (1,005), Iraq (140)

M1A2: Kuwait (218), Saudi Arabia (329)

CONTRACTORS

Prime:

General Dynamics Land Systems
(Sterling Heights, MI)

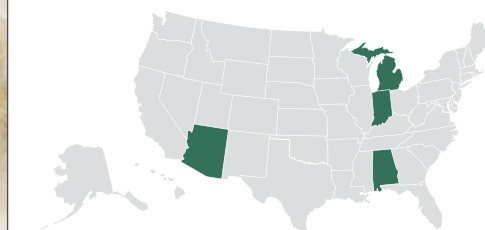
Engine:

Honeywell (Phoenix, AZ)

Transmission:

Allison Transmission (Indianapolis, IN)
Anniston Army Depot (Anniston, AL)

Combat weight (tons): M1A1 - 68.59; M1A2 SEP v1 - 68.57; M1A2 SEP v2 - 69.29
Speed: 42 mph, 30 mph x-country
Main gun/rounds (basic load): M1 - 105mm/55 rounds; M1A1 - 120mm/40 rounds; M1A2 - 120mm/42 rounds
Machine guns: .50 caliber 900 rounds, 7.62mm 11,400 rounds



Advanced Field Artillery Tactical Data System (AFATDS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the Army, Navy, and Marine Corps automated fire support command, control, and communications.

DESCRIPTION

The Advanced Field Artillery Tactical Data System (AFATDS) pairs targets to weapons to provide optimum use of fire support assets and timely execution of fire missions. AFATDS automates the planning, coordinating, and controlling of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, and fire support radars).

AFATDS performs the fire support command, control, and coordination requirements of field artillery and maneuver from echelons above corps to battery or platoon in support of all levels of conflict, and is capable of processing 200 fire missions per hour. The system is composed of common hardware and software employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected

by tactical communications in the form of a software-driven, automated network.

AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis, and fire support planning. This project is a replacement system for the Initial Fire Support Automated System, Battery Computer System, and Fire Direction System. AFATDS is designed to interoperate with the other Army battle command systems; current and future Navy and Air Force command and control weapon systems; and the German, French, British, and Italian fire support systems. The system has been used in operations in Iraq and Afghanistan.

SYSTEM INTERDEPENDENCIES

In this Publication

Distributed Common Ground System–Army (DCGS-A), Force XXI Battle Command Brigade and Below (FBCB2), Excalibur (XM982), Multiple Launch Rocket System (MLRS) M270A1, Paladin/Field Artillery Ammunition Support Vehicle (FAASV), Air/

Missile Defense Planning and Control System (AMDPCS), High Mobility Artillery Rocket System (HIMARS), Lightweight 155mm Howitzer System (LW155)

Other Major Interdependencies

Lightweight Forward Entry Device (LFED), Pocket-Sized Forward Entry Device (PFED), Joint Automated Deep Operations Coordination System (JADOCS), Theater Battle Management Core System (TBMCS), Gun Display Unit–Replacement (GDU-R)

PROGRAM STATUS

- **1QFY09:** Full materiel release (FMR) of AFATDS 6.5.0
- **1QFY10:** FMR of AFATDS 6.5.1 (Windows)
- **4QFY10:** FMR of AFATDS 6.6.0 (Marshall Build)

PROJECTED ACTIVITIES

- **2QFY11:** FMR of AFATDS 6.7.0 (MacArthur Build)
- **1QFY13:** FMR of AFATDS 6.8.0 (Eisenhower Build)

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Advanced Field Artillery Tactical Data System (AFATDS)

FOREIGN MILITARY SALES

Bahrain, Egypt, Jordan, Portugal, Taiwan, Turkey

CONTRACTORS

Software:

Raytheon (Fort Wayne, IN)

Hardware:

General Dynamics (Taunton, MA)

Raytheon (Fort Wayne, IN)

HIMARS Shelters:

Northrop Grumman (Carson, CA)

NET:

VIATECH (Lawton, OK)

Technical:

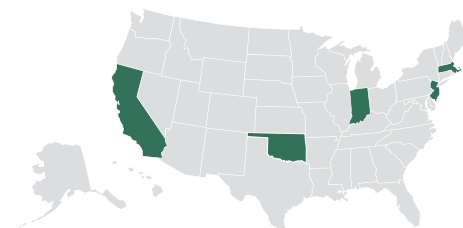
Computer Sciences Corp. (CSC)
(Eatontown, NJ)

Fielding:

CACI (Eatontown, NJ)

IV&V:

Titan Systems (Lawton, OK)



Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Detects missile launches/flights, protects aircraft from Tier 1 infrared (IR) guided missiles, and provides threat awareness and IR countermeasures using an airborne self-protection system.

DESCRIPTION

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

The U.S. Army operational requirements concept for IR countermeasure systems is the Suite of Integrated Infrared Countermeasures (SIIRCM). It mandates an integrated warning and countermeasure system to enhance aircraft survivability against infrared guided threat missile systems. The ATIRCM/CMWS Program forms the core element of the SIIRCM concept. ATIRCM/CMWS has a modular configuration consisting of an

integrated ultraviolet missile warning system, an Infrared Laser Jammer, and Improved Countermeasure Dispensers (ICMDs). This configuration can vary with aircraft and type.

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 ICMDs, it activates expendables to decoy/defeat infrared-guided missiles. ATIRCM adds the Directed Energy Laser Countermeasure Technology to CMWS and is a key for Future Force Army aircraft.

SYSTEM INTERDEPENDENCIES

In this Publication

CH-47F Chinook, Kiowa Warrior, Black Hawk/UH-60

Other Major Interdependencies

AH-64A, AH-64D, C-12R/T/U, C-23, C-26, Constant Hawk-A, Constant Hawk-I, DHC-7, HH-60L, HH-60M, MH-47E/G, MH-60K/L/M, RC-12/C-12, RC-12K/N/P/Q, UC-35

PROGRAM STATUS

- **Current:** All aircraft deployed to Operation Iraqi Freedom/Operation Enduring Freedom equipped with CMWS prior to deployment; OH-58D, Kiowa Warrior is latest platform to integrate CMWS
- **Current:** In process, next generation Electronic Control Unit (ECU) and Missile Warning Algorithms for all aircraft

PROJECTED ACTIVITIES

- **Continue:** ATIRCM Quick Reaction Capability (QRC), the Army's latest Aircraft Survivability Equipment (ASE) initiative to protect crews and aircraft from advanced threat Man-Portable Air Defense Systems (MANPADS)
- **Ongoing:** Fielding to CH-47D/F models
- **1QFY11:** Next generation ECU (for CMWS) initial deliveries planned

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)

FOREIGN MILITARY SALES
United Kingdom

CONTRACTORS

ATIRCM/CMWS (Prime):

BAE Systems (Nashua, NH)

Logistics Support:

AEPCO (Huntsville, AL)

Software Configuration Management Support:

Science Applications International Corp. (SAIC) (Huntsville, AL)

CMWS-GTRI E2E Data Analysis/SIL Development:

Georgia Tech Applied Research Corp. (Atlanta, GA)

OH-58D Product Documentation Update:

Bell Helicopter Textron (Fort Worth, TX)

Test Support Data Analysis:

MacAulay-Brown, Inc. (Dayton, OH)

UH-60A/L P31 Upgrade:

Rockwell Collins (Cedar Rapids, IA)

Engineering/Tech Production Support:

Computer Sciences Corp. (CSC) (Huntsville, AL)

OATS Phase 3:

David H. Pollock Consultants (Eatontown, NJ)

**AN/ALQ-212
Advanced Threat Infrared Countermeasures
(ATIRCM)**

**AAR-57(V)3/5
Common Missile Warning System
(CMWS) / ICMD**

**AAR-57(V)3/5
Improved Countermeasures Dispenser
(ICMD)**



**Infrared
Jam Head
(IRJH)**



**Jam Head
Control Unit
(JHCU)**



**Infrared
Multi-band Laser
(MBL)**



**Electro-Optic
Missile Sensors
(EOMSs)**



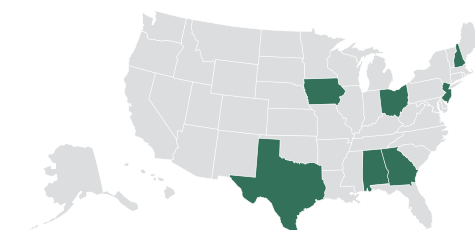
**Electronic
Control Unit
(ECU)**



**AN/ALE-47
Sequencer (GFE)**



**Smart
Dispenser**



Air Warrior (AW)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides enhanced mission effectiveness, leveraging clothing and equipment to maximize aircrew member survivability.

DESCRIPTION

Air Warrior (AW) is a modular, integrated, rapidly reconfigurable combat aircrew ensemble that saves lives and maximizes Army aircrew mission performance. Previous aviation life support equipment consisted of a non-integrated assemblage of protective and survival gear. AW uses a systems approach to equipping the aircrew and closes the capability gap between human and machine. Fielded incrementally in blocks to rapidly provide enhanced capabilities to the warfighter, AW leverages and integrates clothing and equipment, such as the Army Aircrew Combat Uniform and ballistic protection from other Product Managers.

AW Block I provides:

- Survival Equipment Subsystem, which integrates first aid, survival, signaling, and communications equipment with body armor and over-water survival subsystems
- Microclimate Cooling System, which increases effective mission duration in heat-stress environments by more than 350 percent
- Aircrew Integrated Helmet System, a lighter helmet with increased head and hearing protection

AW Increment III:

- Electronic Data Manager (EDM), a portable digital-mission planning device for over-the-horizon messaging and enhanced situational awareness capabilities through connectivity to Blue Force Tracking, Aviation
- Aircraft Wireless Intercom System (AWIS) for secure cordless, hands-free aircrew communications
- Survival Kit, Ready Access, Modular (SKRAM) Go-Bag with integrated hydration
- Portable Helicopter Oxygen Delivery System, a Soldier-worn supplemental breathing oxygen system for high-altitude operations

- Communication Enhancement and Protection System (CEPS) provides helmet hear-through capability

SYSTEM INTERDEPENDENCIES

In this Publication

Force XXI Battle Command Brigade and Below (FBCB2), Black Hawk/UH-60, Joint Battle Command–Platform (JBC-P), Soldier Body Armor, CH-47F Chinook, Army Key Management System (AKMS), Kiowa Warrior, Light Utility Helicopter (LUH)/UH-72A Lakota, Longbow Apache (AH-64D) (LBA), Modernized UH-60 Black Hawk

Other Major Interdependencies

Fixed Wing

PROGRAM STATUS

- **FY09:** Fielded Air Warrior Increment III systems
- **FY10:** Fielding of the CEPS and SKRAM

PROJECTED ACTIVITIES

- **FY11:** Continue fielding and reset of Air Warrior to units prior to deployment

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

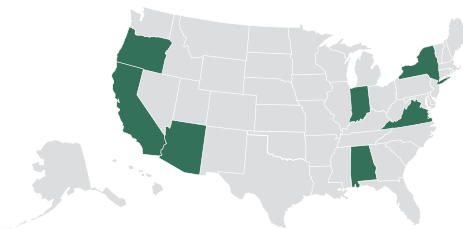
Air Warrior (AW)

FOREIGN MILITARY SALES

Australia, Bahrain, Canada, United Arab Emirates

CONTRACTORS

Telephonics Corp. (Farmingdale, NY)
 General Dynamics C4 Systems, Inc. (Scottsdale, AZ)
 BAE Systems (Phoenix, AZ)
 Aerial Machine and Tool Corp. (Vesta, VA)
 Westwind Technologies Inc. (Huntsville, AL)
 Carleton Technologies Inc. (Orchard Park, NY)
 Med-Eng Systems Inc. (Ogdensburg, NY)
 Raytheon Technical Services (Indianapolis, IN)
 Secure Communication Systems Inc. (Santa Ana, CA)
 US Divers (Vista, CA)
 CEP Inc. (Enterprise, AL)
 Science and Engineering Services, Inc. (SESI) (Huntsville, AL)
 Gibson and Barnes (Santa Clara, CA)
 Oxygen Generating Systems International (Buffalo, NY)
 Gentex Corp. (Rancho Cucamonga, CA)
 Mountain High Equipment and Supply Co. (Redmond, OR)
 Taylor-Wharton (Huntsville, AL)



Air/Missile Defense Planning and Control System (AMDPCS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides an automated command and control system that integrates Air and Missile Defense planning and operations for ADAM Systems, ADA Brigades, and AAMDCs.

DESCRIPTION

The Air/Missile Defense Planning and Control System (AMDPCS) is an Army Objective Force system that provides integration of Air and Missile Defense (AMD) operations at all echelons. AMDPCS systems are deployed with Air Defense Airspace Management (ADAM) Systems, Air Defense Artillery (ADA) brigades, and Army Air and Missile Defense Commands (AAMDCs).

ADAM provides the commanders at Brigade Combat Teams (BCTs), fires brigades, combat aviation brigades, and division and corps tactical operations systems with situational awareness (SA) of the airspace. ADAM provides collaboration and staff planning capabilities through the Army Battle Command System and operational

links for airspace coordination with Joint, interagency, multinational, and coalition forces.

AMDPCS in ADA brigades and AAMDCs provides expanded staff planning and coordination capabilities for integrating defense of the air battlespace. AMDPCS includes shelters, automated data processing equipment, tactical communications, standard vehicles, tactical power, and the following two software systems for force operations/engagement operations: Air and Missile Defense Workstation (AMDWS) and Air Defense System Integrator (ADSI).

AMDWS is a staff planning and battlespace SA tool that provides commanders with a common tactical and operational air picture. ADSI is a fire control system that monitors and controls air battle engagement operations by subordinate or attached units.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY08:** Complete fielding of AMDPCS to 31st and 35th ADA Brigades and to four composite AMD battalions procured in FY08
- **3QFY10:** BOIPs approved for AMDPCS Family of Systems
- **1QFY11:** Complete fielding of 10 ADAMs procured in FY10
- **1QFY11:** Complete FY10 reset of 32 ADAMs

PROJECTED ACTIVITIES

- **2QFY11:** Fielding AMDWS version 6.5.1 with 3D display
- **4QFY11:** Fielding two ADA brigades and 6 ADAMs
- **1QFY12:** Complete FY10 reset projection of 34 ADAMs

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

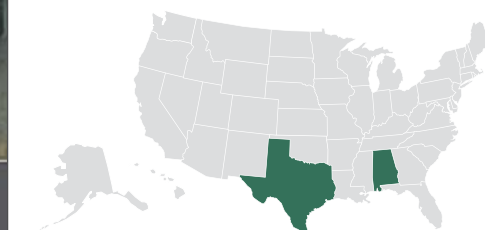
Air/Missile Defense Planning and Control System (AMDPCS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Northrop Grumman (Huntsville, AL)
Ultra, Inc. (Austin, TX)



Airborne Reconnaissance Low (ARL)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides tactical commanders with a day/night, near all-weather, near real-time airborne communications intelligence/imagery intelligence (COMINT/IMINT) collection and designated area surveillance system.

DESCRIPTION

Airborne Reconnaissance Low (ARL) is a self-deploying, multisensor, day/night, all-weather reconnaissance, intelligence system. It consists of a modified DeHavilland DHC-7 fixed-wing aircraft equipped with COMINT/IMINT and Ground Moving Target Indicator/Synthetic Aperture Radar (GMTI/SAR), and electro-optical (EO)/infrared (IR) full-motion video capability. The payloads are controlled and operated via on-board open-architecture, multifunction workstations. Intelligence collected on the ARL can be analyzed, recorded, and disseminated on the aircraft workstations in real time and stored on board for post-mission processing. During multi-aircraft missions, data can be shared between cooperating aircraft via ultra high frequency air-to-air data links allowing

multiplatform COMINT geolocation operations. The ARL system includes a variety of communications subsystems to support near-real-time dissemination of intelligence and dynamic retasking of the aircraft. ARL provides real-time down-link of MTI data to the Common Ground Station (CGS) at the Brigade Combat Team through echelon-above-corps level. Eight aircraft are configured as ARL–Multifunction (ARL–M), equipped with a combination of IMINT, COMINT, and SAR/MTI payload and demonstrated hyperspectral imager applications and multi-intelligence (multi-INT) data fusion capabilities. Four mission workstations are on board the aircraft and are remote-operator capable. The Intelligence and Security Command (INSCOM) operates all ARL systems and currently supports Southern Command (SOUTHCOM) with one to four ARL–M aircraft, United States Forces Korea (USFK) with three ARL–M aircraft, and U.S. Central Command (CENTCOM) with one aircraft. Future sensor enhancements are focused on upgrades to the COMINT, IMINT, and radar payloads to support emerging threats.

Capabilities include:

- **Endurance/ceiling:** 8 hours/20,000 feet
- **Speed/gross weight:** 231 knots/47,000 pounds
- **Range with max payload:** greater than 1,400 nautical miles
- **Mission completion rate:** greater than 90 percent

ARL will continue to support current operations until a future system is fielded.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY09:** Phoenix Eye upgrade on ARL–M1
- **2QFY10:** Convert ARL C2 into ARL–M7
- **3QFY10:** Convert ARL C1 into ARL–M8

PROJECTED ACTIVITIES

- **FY11:** Continue imagery, radar, COMINT, system interoperability, and workstation architecture upgrades

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Airborne Reconnaissance Low (ARL)

FOREIGN MILITARY SALES

None

CONTRACTORS

Sierra Nevada Corp. (Hagerstown, MD)

Aircraft Survivability:

Litton Advanced Systems
(Gaithersburg, MD)

COMINT Subsystem:

BAE Systems (Manchester, NH)

EO/IR Subsystem:

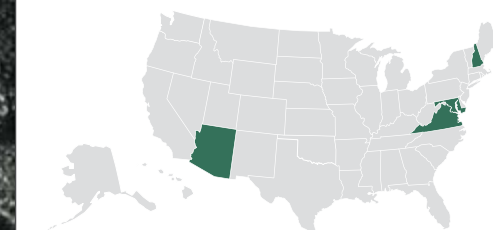
WESCAM (Hamilton, Ontario, Canada)

Engineering Support:

CACI (Berryville, VA)

Radar Subsystem:

Lockheed Martin (Phoenix, AZ)



All Terrain Lifter Army System (ATLAS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides a mobile, variable reach, rough terrain forklift (RTFL) capable of handling all classes of supplies.

DESCRIPTION

The All Terrain Lifter Army System (ATLAS) is a C-130 air-transportable, 10,000-pound-capacity, variable-reach, RTFL. ATLAS supports units from the transportation, quartermaster, ordnance, missiles and munitions, engineer, aviation, and medical Army units. ATLAS's cross-country mobility allows it to support the Brigade Combat Teams and it is a critical asset supporting an expeditionary Army.

ATLAS is a military-unique vehicle: commercial forklifts cannot meet military requirements. It is capable of lifting 4,000 pounds at a 21.5 feet reach, 6,000 pounds at 15 feet, and 10,000 pounds at four feet. ATLAS is equipped with two interchangeable fork carriages: a 6,000-pound carriage for stuffing and unstuffing standard Army pallets with 24-inch load centers from 20-foot containers weighing up to 6,000 pounds; and a 10,000-pound

carriage for handling loads weighing up to 10,000 pounds at 48-inch load center (Air Force 463L pallets).

ATLAS is a key component of the Army's Container Oriented Distribution System. The ATLAS II is an Environmental Protection Agency Tier III-compliant ATLAS with improved reliability, performance, survivability, and transportability. ATLAS I and ATLAS II systems are used to handle all classes of supply and are essential to the deployment of a continental U.S.-based Army and to the sustainment of a deployed force.

Crew survivability is being addressed in accordance with the Army's Long Term Armor Strategy.

ATLAS Features

Length: 27.02 feet

Width: 8.35 feet (ATLAS II is four inches narrower)

Height: 8.92 feet

Weight: 33,500 pounds

Power train: 165 horsepower Cummins diesel engine; Funk 1723 PowerShift (three-speed forward and reverse) mechanical transmission

Cruising range: 10 hours of operation before refueling

Road speed: 23 miles per hour

Force protection: Integrated armor

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY07:** ATLAS II contract award; ongoing production and fielding of ATLAS I

PROJECTED ACTIVITIES

- **Continue:** Fielding to units

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

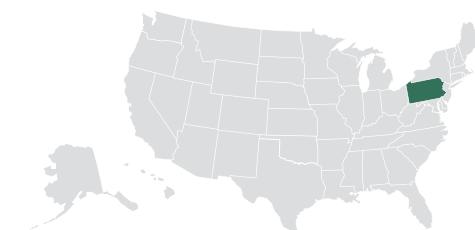
All Terrain Lifter Army System (ATLAS)

FOREIGN MILITARY SALES

None

CONTRACTORS

JLG Industries, Inc. (McConnellsburg, PA)



Armored Knight

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Assists Heavy and Infantry Brigade Combat Teams (HBCTs and IBCTs) in performing terrain surveillance, target acquisition and location, and fire support for combat observation lasing team missions.

DESCRIPTION

The M1200 Armored Knight provides precision strike capability by locating and designating targets for both ground- and air-delivered laser-guided ordnance and conventional munitions. It replaces the M707 Knight High Mobility Multipurpose Wheeled Vehicle (HMMWV) base and M981 fire support team vehicles used by combat observation lasing teams (COLTs) in both HBCTs and IBCTs. It operates as an integral part of the brigade reconnaissance element, providing COLT and fire support mission planning and execution.

The Armored Knight is a M117 Armored Security Vehicle (ASV) chassis/hull with add-on armor fragmentation kits installed, providing enhanced survivability and

maneuverability over the unarmored M707. The system includes a full 360-degree armored cupola and integrated Knight mission equipment package.

The mission equipment package includes: Fire Support Sensor System (FS3) mounted sensor, Targeting Station Control Panel, Mission Processor Unit, Inertial Navigation Unit, Defense Advanced Global Positioning System Receiver (DAGR), Power Distribution Unit, Rugged Hand-Held Computer Unit (RHC) Forward Observer Software (FOS).

Other Armored Knight specifications:
Crew: Three COLT members
Combat loaded weight: Approximately 15 tons
Maximum speed: 63 miles per hour
Cruising range: 440 miles
Target location accuracy: less than 20 meters circular error probable

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Armored Security Vehicle (ASV), Force XXI Battle

Command Brigade and Below (FBCB2), Lightweight Laser Designator/Rangefinder (LLDR) AN/PED-1, Single Channel Ground and Airborne Radio System (SINCGARS)

Other Major Interdependencies

FS3, FOS

PROGRAM STATUS

- **FY10:** Cumulative total of 239 vehicle systems produced out of 386 vehicle systems procured; Vehicle systems fielded to deploying HBCTs and IBCTs

PROJECTED ACTIVITIES

- **2QFY11–FY12:** Procure and produce additional 79 M1200 vehicle systems; field to next deploying units in HBCTs/IBCTs in Active Component and Army National Guard
- **FY12:** Complete Design/Integration/Validation of Targeting under Armor Capability for M1200 Armored Knight for increased survivability

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Armored Knight

FOREIGN MILITARY SALES

None

CONTRACTORS

M1117 ASV Hull:

Textron Marine & Land Systems
(New Orleans, LA)

Precision Targeting Systems

Production/Vehicle Integration:

DRS Sustainment Systems, Inc. (St. Louis, MO; West Plains, MO)

FS3 Sensor:

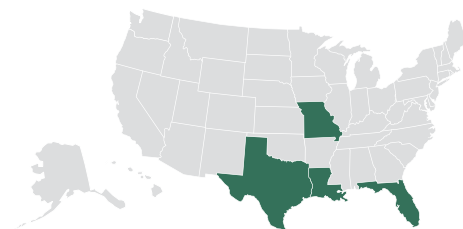
Raytheon (McKinney, TX)

Inertial Navigation Unit:

Honeywell (Clearwater, FL)

Common Display Unit:

DRS Tactical Systems (Melbourne, FL)



Armored Security Vehicle (ASV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports the military police missions of rear-area security, law and order operations, battlefield circulation, and enemy prisoner-of-war operations over the entire spectrum of war and in operations other than war, and performs convoy protection missions.

DESCRIPTION

The M1117 Armored Security Vehicle (ASV) is an armored and turreted all-wheel drive vehicle that supports military police and convoy missions and operations. The ASV provides protection to the crew compartment, gunner's station, and the ammunition storage area. The turret is fully enclosed with an MK-19 40mm grenade launcher gun, an M48 .50-caliber machine gun, and a multi-salvo smoke grenade launcher. The ASV provides ballistic, blast, and overhead protection for its four-person crew. The ASV has a payload of 3,360 pounds, 400-mile-plus range, top speed of nearly 70 miles per hour, and C-17 deployability.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** Continue fielding to support military police companies and convoy protection units

PROJECTED ACTIVITIES

- **FY11:** Produce approximately 150 vehicles; field approximately 250 vehicles; upgrade turret capabilities



ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Armored Security Vehicle (ASV)

FOREIGN MILITARY SALES

Non-standard stretch ASV-like vehicles delivered to Iraq and Colombia; M1117 delivered to Iraq

CONTRACTORS

Prime:

Textron Marine & Land Systems
(New Orleans, LA)

Armor:

BAE Systems (Phoenix, AZ)

Powerpack:

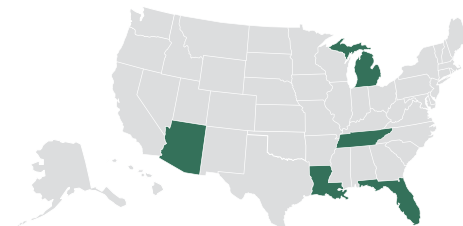
Cummins Mid-South LLC (Memphis, TN)

Control Unit:

Chenega (Panama City, FL)

Axles:

Lapeer Industries Inc. (Lapeer, MI)



Army Key Management System (AKMS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Automates the functions of communication securities (COMSEC) key management, control, and distribution; electronic protection generation and distribution; and signal operating instruction management to provide planners and operators with automated, secure communications at theater/tactical and strategic/sustaining base levels.

DESCRIPTION

The Army Key Management System (AKMS) is a fielded system composed of three subsystems: Local COMSEC Management Software (LCMS), Automated Communications Engineering Software (ACES), and the Data Transfer Device/Simple Key Loader (SKL). Under the umbrella of the objective National Security Agency Electronic Key Management System,

AKMS provides tactical units and sustaining bases with an organic key generation capability and an efficient secure electronic key distribution means. AKMS provides a system for distribution of COMSEC, electronic protection, and signal operating instructions (SOI) information from the planning level to the point of use in support of current, interim, and objective force at division and brigade levels.

The LCMS (AN/GYK-49) workstation provides automated key generation, distribution, and COMSEC accounting. The ACES (AN/GYK-33), which is the frequency management portion of AKMS, has been designated by the Military Communications Electronics Board as the joint standard for use by all services in development of frequency management and cryptographic net planning and SOI generation. The SKL (AN/PYQ-10) is the associated support item of equipment that provides the interface between the ACES workstation, the LCMS workstation, the warfighter's

End Crypto Unit, and the Soldier. It is a small, ruggedized hand-held key loading device.

The Coalition Joint Spectrum Management Planning Tool (CJSMPT) is supported for deployment and sustainment. It will provide joint spectrum management deconfliction capabilities for both communications and electronic warfare spectrum users.

SYSTEM INTERDEPENDENCIES

AKMS systems are considered enabling systems for equipment/systems to receive key and frequency allotments.

PROGRAM STATUS

- **3QFY10:** Procured over 6,000 SKLs for Army units
- **FY10:** ACES software upgrade version 2.0; SKL software upgrade version 6.0
- **FY10:** Refreshed and fielded LCMS hardware to Army COMSEC custodians
- **FY10:** Trained, deployed, and sustained CJSMPT capability

PROJECTED ACTIVITIES

- **FY11:** LCMS software upgrade version 5.1
- **FY11:** Continue to procure and field SKLs for Army, Air Force, Navy, and civilians
- **FY11:** Complete refresh of ACES hardware to current users
- **FY11:** SKL software upgrade version 7.0

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

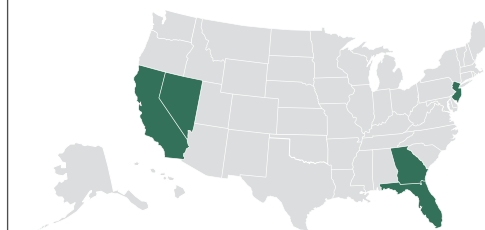
Army Key Management System (AKMS)

FOREIGN MILITARY SALES

Australia, Belgium, Canada, Czech Republic, Germany, Greece, Hungary, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovenia, Spain, Turkey, United Kingdom

CONTRACTORS

Sierra Nevada Corp. (Sparks, NV)
 Science Applications International Corp. (SAIC) (San Diego, CA)
 CACI (Eatontown, NJ)
 Sypris (Tampa, FL)
 CSS (Augusta, GA)



Artillery Ammunition

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides field artillery forces with modernized munitions to destroy, neutralize, or suppress the enemy by cannon fire.

DESCRIPTION

The Army's artillery ammunition program includes 75mm (used for ceremonies and simulated firing), 105mm, and 155mm projectiles and their associated fuzes and propelling charges.

Semi-fixed ammunition for short and intermediate ranges, used in 105mm howitzers, is characterized by adjusting the number of multiple propelling charges. Semi-fixed 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. All 105mm cartridges are issued in a fuzed or unfuzed configuration. Both cartridge configurations are packaged with propellant.

Separate-loading ammunition, used in 155mm howitzers, has separately issued projectiles, fuzes, propellant charges, and primers. After installing the appropriate fuze on the projectile, the fuzed projectile is loaded into the cannon along with the appropriate amount of propellant charges and a primer.

The artillery ammunition program includes fuzes for cargo-carrying projectiles, such as smoke, illumination, dual-purpose improved conventional munitions, and bursting projectiles, such as high explosives. This program also includes bag propellant for the 105mm semi-fixed cartridges and modular artillery charge system for 155mm howitzers.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY09:** Completed type classification of the 105mm M1064 Infrared (IR) Illumination cartridge

PROJECTED ACTIVITIES

- **3QFY11:** Complete full materiel

release of the 155mm M1066 IR Illumination projectile

- **4QFY11:** Complete full materiel release of the 105mm M1130 pre-formed fragmentation high-explosive (HE) cartridge
- **4QFY11:** Complete full materiel release of the 155mm M1122 HE training projectile

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Artillery Ammunition

FOREIGN MILITARY SALES

Australia, Canada, Israel, Lebanon

CONTRACTORS

General Dynamics Ordnance and Tactical Systems—Scranton Operations
(Scranton, PA)

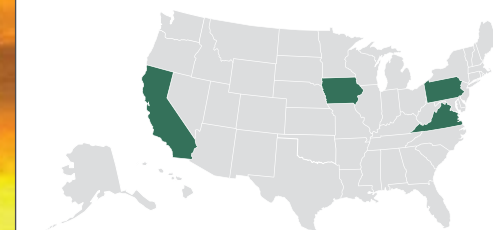
General Dynamics Ordnance and Tactical Systems (Valleyfield, Québec, Canada)

Alliant Techsystems (Radford, VA)

American Ordnance (Middletown, IA)

Esterline Defense Technologies

(Coachella, CA)



Aviation Combined Arms Tactical Trainer (AVCATT)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a collective training system to meet aviation training requirements and to support institutional, organizational, and sustainment training for Active and Reserve Army aviation units worldwide in combined arms training and mission rehearsal.

DESCRIPTION

The Aviation Combined Arms Tactical Trainer (AVCATT) is a mobile, transportable, multi-station virtual simulation device designed to support aviation unit collective and combined arms training. AVCATT provides manned modules reconfigurable to any combination of attack, reconnaissance, lift and/or cargo helicopters. There are four role player stations for battalion/squadron staff, combined arms elements, integrated threat or friendly Semi-Automated Forces (SAF). Exercise record/playback

with simultaneous AAR capability is provided. All 23 AVCATT suites have been fielded. The suites are continually upgraded. The Non-Rated Crew Member Manned Module (NCM3) and SE Core/OneSAF Integration represent the largest, current efforts.

The AVCATT single suite of equipment consists of two mobile trailers that house six reconfigurable, networked simulators to support the Apache, Apache Longbow, Kiowa Warrior, Chinook, and Black Hawk. An after-action review theater and a battle master control station are also provided as part of each suite.

AVCATT builds and sustains training proficiency on mission-essential tasks through crew and individual training by supporting aviation collective tasks, including armed reconnaissance (area, zone, and route); deliberate attack; covering force operations; downed aircrew recovery operations; joint air attack team; hasty attack; and air assault operations. The system also has multiple correlated visual databases to include Iraq and Afghanistan.

AVCATT is fully mobile, capable of using commercial and generator power, and is transportable worldwide. The system is interoperable via local area network/wide area network with other AVCATT suites and the Close Combat Tactical Trainer.

SYSTEM INTERDEPENDENCIES

In this Publication

One Semi-Automated Force (OneSAF)

Other Major Interdependencies

AVCATT requires Synthetic Environment Core (SE Core) to provide terrain databases and virtual models. OneSAF will provide a common SAF through SE Core in the future.

PROGRAM STATUS

- **1QFY10:** Fielding of 23 suites completed; program has satisfied its Basis of Issue Plan
- **2QFY10:** Award of NCM3 development contract; NCM3 will represent the “third trailer” of AVCATT
- **4QFY10:** All 23 suites: Multimillion dollar upgrades complete; effort provided technology refresh (new image generators, head mounted displays, host and gate computers, and communications system)

PROJECTED ACTIVITIES

- **3QFY11:** SE Core and OneSAF integration complete; begin fielding new software baseline with new model/database/SAF capabilities
- **4QFY11:** Field first NCM3 to Ft. Campbell, KY
- **1QFY12:** Field second NCM3 to Ft. Campbell, KY

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

AVCATT-A
2 Trailer Suite



Aviation Combined Arms Tactical Trainer (AVCATT)

FOREIGN MILITARY SALES

None

CONTRACTORS

AVCATT:

L-3 Communications (Arlington, TX)

NCM3:

Science Applications International Corp.
(SAIC) (Orlando, FL)



Manned Simulator

Manned Simulators



Apache AH-64A



Kiowa Warrior OH-58D



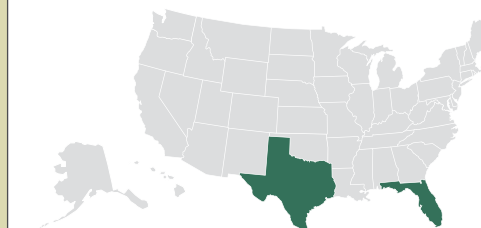
Chinook Ch-47D



Black Hawk UH-60A/L



Apache Longbow AH-64D



Battle Command Sustainment Support System (BCS3)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports U.S. land forces with a logistic decision-making capability that is modular, tailorable, and scalable to meet the full spectrum of battlefield logistics command and control (C2) in the battle command environment.

DESCRIPTION

The Battle Command Logistics Command and Control (BCS3) system is an integral part of the Army Battle Command System's (ABCS) automation logistical and data portion of the common operational picture (COP). It is a precision tool designed for logistical planning and execution that provides commanders with overarching situational awareness critical in making rapid, precise critical tactical, operational, and strategic decisions in a war environment.

BCS3's core competencies are to provide units, military personnel, and commanders with the best warfighting capability through the logistics COP; commodity visibility; convoy operations; reception, staging, onward movement; and logistics reporting. The BCS3 system is currently employed at multiple echelons, and is utilized to fuse sustainment, in-transit, and force data reports for commanders in a war environment. With its Microsoft Windows-type COP, BCS3 can provide a comprehensive real-time logistical report that is modularly structured, tailorable, and scalable to meet the full spectrum of battlefield logistics C2 requirements.

BCS3 was developed by incorporating innovative logistics technologies and applications developed over the last decade with today's emerging technologies used in support of U.S. land forces missions in Iraq and Afghanistan. BCS3 is currently aligned with the Army's Battle Command Collapse Strategy intended to migrate existing capability to Command Post of the Future (CPOF), and web-enabled Thin-Client Log C2 applications.

The system will continue to be utilized in training exercises, mission planning, rehearsal, and execution. It can be operated in unclassified and classified environments. BCS3 also interfaces with other Army, Joint Multinational C2, and logistics business systems. In effect, the system advances the goal to increase capability for U.S. land forces in Joint full-spectrum operations as laid out in the Army's Strategic Planning Guidance.

SYSTEM INTERDEPENDENCIES

In this Publication

Movement Tracking System (MTS)

Other Major Interdependencies

LIW/LOGSA, ILAP, SARSS, SAMS(E), SASS-MOD, PBUSE, EMILPO, RFID

PROGRAM STATUS

- **1QFY10:** Software fielding BC08.10.02.03
- **2QFY10:** Fielding to 167th Theater Sustainment Command
- **3QFY10:** Fielding to 135th Sustainment Command (Expeditionary)

PROJECTED ACTIVITIES

- **3QFY11:** Software delivery BC10.0.3
- **3QFY12:** Software delivery BC10.0.4

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Battle Command Sustainment Support System (BCS3)

FOREIGN MILITARY SALES

None

CONTRACTORS

Software Development/Engineering Services:

Northrop Grumman (Carson, CA)

Field Support/Engineering Services:

Tapestry (San Diego, CA)

Program Support:

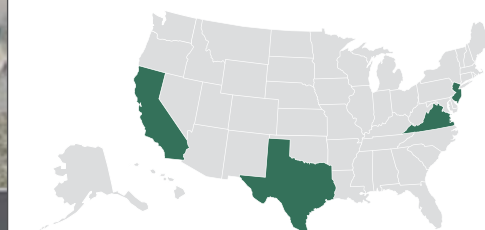
CACI (Chantilly, VA)

Hardware:

Dell Computer Corporation
(Round Rock, TX)

New Equipment Training:

Lockheed Martin (Tinton Falls, NJ)



Biometric Enabling Capability (BEC)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Serves as the Department of Defense authoritative biometric repository enabling identity superiority.

DESCRIPTION

Biometrics Enabling Capability (BEC) (formerly the Biometric Enterprise Core Capability [BECC]), using an Enterprise System-of-Systems architecture, will serve as DoD's biometric repository, enabling multi-modal matching, storing, and sharing in support of identity superiority across the department.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Personnel Identification version 2 (JPIv2)

Other Major Interdependencies

Automated Identity Management System (AIMS), Biometric Identification System for Access (BISA), Detainee Reporting System (DRS), Department of Homeland Security IDENT, FBI Integrated Automated Fingerprint Identification

System (IAFIS), Identity Dominance System (IDS), Special Operations Identity Dominance (SOID)

PROGRAM STATUS

- **4QFY08:** DoD Biometrics Acquisition Decision Memorandum (ADM) directs Milestone B no later than FY10
- **1QFY09:** Biometrics in support of Identity Management Initial Capabilities Document approved by Joint Requirements Oversight Council
- **4QFY09:** DoD Biometrics ADM directs Analysis of Alternatives (AoA) to be completed 2QFY10
- **3QFY10:** DoD Biometrics ADM approved name change from Biometric Enterprise Core Capability (BECC) to Biometric Enabling Capability (BEC)
- **4QFY10:** DoD Biometrics ADM approved Biometric AoA final report; ADM also directed the current operational Next Generation-Automated Biometric Identification System to a full deployment decision (BEC Increment 0) in FY11

- **4QFY10:** DoD Biometrics ADM directs Milestone B for BEC Increment 1 in FY12

PROJECTED ACTIVITIES

- **1QFY11:** NG-ABIS Capability Production Document approved
- **2QFY11:** Biometrics BEC Increment 1 Capability Development Document approved
- **3QFY11:** Full deployment decision for BEC Increment 0
- **3QFY12:** Milestone B for BEC Increment 1, i.e., permission to enter system development and demonstration

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Biometric Enabling Capability (BEC)**FOREIGN MILITARY SALES**

None

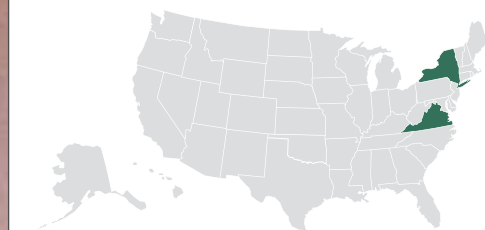
CONTRACTORS**Program Management Support****Services:**

CACI (Arlington, VA)

The Research Associates (New York, NY)

System Development and Integration:

To be determined pending Milestone B



Black Hawk/UH-60

INVESTMENT COMPONENT

Modernization (UH-60M)

Recapitalization (UH-60 A-A/L)

Maintenance

MISSION

Provides air assault, general support, aeromedical evacuation, command and control, and special operations support to combat, stability, and support operations.

DESCRIPTION

The Black Hawk (UH-60) is the Army's utility tactical transport helicopter. The versatile Black Hawk has enhanced the overall mobility of the Army due to dramatic improvements in troop capacity and cargo lift capability. It will serve as the Army's utility helicopter in the Future Force.

There are multiple versions of the UH-60 Black Hawk: the original UH-60A; the UH-60L, which has greater gross weight capability, higher cruise speed, rate of climb, and external load; and the UH-60M, which includes the improved GE-701D engine and

provides greater cruising speed, rate of climb, and internal load than the UH-60A and L versions. During FY10 the Army decided to continue only with developmental testing of the UH-60M P3I Upgrade components, including Common Avionics Architecture System, fly-by-wire flight controls and full authority digital engine control upgrade to the GE-701D Engine.

There are also dedicated Medical Evacuation (MEDEVAC) versions of the UH-60 Black Hawk: the HH-60A, HH-60L and HH-60M each include an integrated MEDEVAC Mission Equipment Package (MEP) kit, providing day/night and adverse weather emergency evacuation of casualties.

On the asymmetric battlefield, the Black Hawk enables the commander 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 predecessor systems and in most weather conditions. The Black Hawk

can reposition a 105mm howitzer, its crew of six, and up to 30 rounds of 105mm ammunition in a single lift. The aircraft's critical components and systems are armored or redundant, and its airframe is designed to crush progressively on impact, thus protecting crew and passengers. The UH-60M is a digital networked platform with greater range and lift to support maneuver Commanders through air assault, general support command and control, and aeromedical evacuation. Full rate production for the new-build UH-60M began in 2007 and the UH-60M is currently employed in a second combat rotation.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS), Air Warrior (AW), Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)

Other Major Interdependencies

Blue Force Tracker (BFT)

PROGRAM STATUS

- **FY08:** Multi-service/multi-year VII contract award
- **FY08:** UH-60M first unit equipped
- **FY08:** UH-60M P3I upgrade first flight
- **Current:** Production and fielding of UH-60M and HH-60M aircraft

PROJECTED ACTIVITIES

- **Continue:** Production and fielding of UH-60M and HH-60M aircraft
- **FY12:** Multi-service/multi-year VIII contract award

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Black Hawk/UH-60

FOREIGN MILITARY SALES

UH-60M:

Bahrain, Mexico, United Arab Emirates

UH-60L:

Brazil, Colombia, Egypt, Jordan, Saudi Arabia, Thailand

CONTRACTORS

UH-60M:

Sikorsky (Stratford, CT)

701D Engine:

General Electric (Lynn, MA)

Multi-Function Displays:

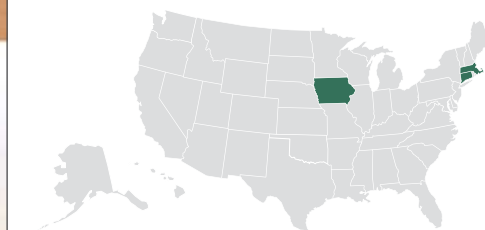
Rockwell Collins (Cedar Rapids, IA)

Flight Controls:

Hamilton Sundstrand (Windsor Locks, CT)



	UH-60A	UH60L	UH60M
MAX GROSS WEIGHT (pounds):	20,250	22,000	22,000
CRUISE SPEED (knots):	149	150	152
RATE CLIMB (feet per minute):	814	1,315	1,646
ENGINES (2 each):	GE-700	GE-701C	GE-701D
EXTERNAL LOAD (pounds):	8,000	9,000	9,000
INTERNAL LOAD (troops/pounds):	11/2,640	11/2,640	11/3,190
CREW:	two pilots, two crew chiefs		
ARMAMENT:	two 7.62mm machine guns		



Bradley Fighting Vehicle Systems Upgrade

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides infantry and cavalry fighting vehicles with digital command and control capabilities, significantly increased situational awareness, enhanced lethality and survivability, and improved sustainability and supportability.

DESCRIPTION

The Bradley M2A3 Infantry/M3A3 Cavalry Fighting Vehicle (IFV/CFV) features two second-generation, forward-looking infrared (FLIR) sensors—one in the Improved Bradley Acquisition Subsystem (IBAS), the other in the Commander's Independent Viewer (CIV). These systems provide "hunter-killer target handoff" 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 (FBCB2) package with digital maps, messages, and friend/foe information. These systems provide the vehicle with increased shared battlefield situational awareness (SA).

The Bradley's position navigation with GPS, inertial navigation, and enhanced squad SA includes a squad leader display integrated into vehicle digital images and IC3.

SYSTEM INTERDEPENDENCIES

In this Publication

Force XXI Battle Command Brigade and Below (FBCB2), Single Channel Ground and Airborne Radio System (SINGARS)

Other Major Interdependencies

Army Battle Command System (ABCS), Blue Force Tracker (BFT), FM Voice-Advanced SINGARS Improvement Program (ASIP) Radio, Forward Observer Systems (BFIST Only), Ground Mobile Radio System (GMRS), System of Systems Common Operating Environment (SOSCOE)

PROGRAM STATUS

- **1QFY10:** Bradley A3 fielded to 1st Brigade, 4th Infantry Division; ODS fielded to 170th Separate Infantry Brigade
- **2QFY10:** Bradley A3 fielded to 4th Brigade, 1st Cavalry Division and 2nd Brigade, 4th Infantry Division;

ODS fielded to 1st Brigade, 1st Infantry Division and 2nd Brigade, 1st Infantry Division

- **3QFY10:** Bradley A3 fielded to Army Prepositioned Stock 5; 3rd Brigade, 1st Cavalry Division; 2nd Brigade, 1st Cavalry Division; ODS fielded to 172nd Separate Infantry Brigade
- **4QFY10:** Bradley A3 fielded to 1st Brigade, 1st Cavalry Division; ODS SA fielded to 81st Washington Army National Guard

PROJECTED ACTIVITIES

- **2QFY11:** Field Bradley A3 2nd Brigade, 1st Armor Division and 3rd Brigade, 3rd Infantry Division; Field ODS SA 30th Heavy Brigade Combat Team North Carolina Army National Guard
- **3QFY11:** Field Bradley A3 2nd Brigade, 3rd Infantry Division
- **4QFY11:** Field Bradley A3 1st Brigade, 2nd Infantry Division and 3rd Brigade, 4th Infantry Division; ODS fielded to TSS, Korea

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Bradley Fighting Vehicle Systems Upgrade

FOREIGN MILITARY SALES

None

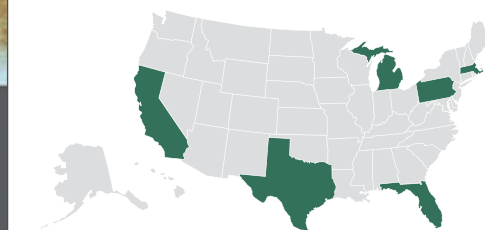
CONTRACTORS

Prime:

BAE Systems (York, PA; Santa Clara, CA)
 DRS Technologies (Palm Bay, FL)
 Raytheon (McKinney, TX)
 L-3 Communications (Muskegon, MI)
 Curtiss-Wright (Littleton, MA)
 Elbit Systems of America (Fort Worth, TX)



SPEED: 40 mph
RANGE: 250 miles
PAYLOAD: 6,000 pounds
VEHICLE WEAPONS: 25mm, TOW II, 7.62mm
M2/M3A3 MMBF REQUIRED/ACTUAL: 400/681
DEPLOYABLE AIRCRAFT: C17, C5



Calibration Sets Equipment (CALSETS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the capability to test, adjust, synchronize, repair, and verify the accuracy of Army test, measurement, and diagnostic equipment across all measurement parameters.

DESCRIPTION

Calibration Sets Equipment (CALSETS) consists of fixed and tactical shelters that house all instrumentation, components, and power generation equipment constituting a set. CALSETS is capable of providing support to maintenance units or area support from brigade to multi-theater sustainment operations. They are designed to calibrate 90 percent of the Army's test, measurement and diagnostic equipment workload with an objective of 98 percent. The Calibration Sets Secondary Transfer Standards are deployed worldwide and are used to verify and transfer precision accuracy to the current and future force.

CALSETS are designed to plug into Army enterprise and battle networks, fully supporting net-centric Joint operations and communications. The shelters are 100 percent mobile, transportable in operational configuration by surface mode or aircraft (C-130, C-5, and C-17).

Secondary Transfer Standards Basic, AN/GSM-286: This set consists of baseline instruments and components capable of supporting precision maintenance equipment in the physical, dimensional, electrical, and electronic parameters.

Secondary Transfer Standards Augmented, AN/GSM-287: This set consists of baseline instruments and components with expanded capability to support a wider variety of precision maintenance equipment. It is capable of supporting precision maintenance equipment in the physical, dimensional, electrical, electronic, radiological, electro-optical, and microwave frequency parameters.

Secondary Transfer Standards, AN/GSM-421: This calibration platform consists of a M1152 High Mobility

Multipurpose Wheeled Vehicle with a mounted shelter and integrated 10-kilowatt power generator. It is equipped with a basic set of precision maintenance calibration standards designed to support up to 70 percent of the Army's high density precision measurement equipment in forward areas. This system is modular and configurable to meet mission requirements and can operate in a true split-based mission posture. Designed for rapid deployment by surface or air, AN/GSM-421 will not radiate or be disrupted by electromagnetic interference.

Secondary Transfer Standards, AN/GSM-705: This calibration platform consists of a M1088A1 Medium Tactical Vehicle Tractor with a 35-foot trailer and integrated 15-kilowatt generator. It contains the baseline and expanded-issue instruments and components. The platform applies a network-centric approach to precision maintenance support operations and data handling.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY09:** Total-package fielding to National Guard of CALSETS Secondary Transfer Standards, AN/GSM-705
- **Current:** Sustainment of CALSETS Secondary Transfer Standards Basic, AN/GSM-286; Secondary Transfer Standards Augmented, AN/GSM-287; Secondary Transfer Standards, AN/GSM-421 and AN/GSM-705
- **Current:** Production and fielding of CALSETS Secondary Transfer Standards, AN/GSM-705 (National Guard)
- **Current:** System development and demonstration of an up-armor capable CALSETS Secondary Transfer Standards, AN/GSM-421(v2)

PROJECTED ACTIVITIES

- **2QFY11:** AN/GSM-421(v2) limited user test
- **3QFY11:** Milestone C for AN/GSM-421(v2)
- **3QFY11:** AN/GSM-421(v2) Full-rate production decision
- **3QFY11:** AN/GSM-421(v2) Production contract awarded
- **3QFY12:** AN/GSM-421(v2) First unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Calibration Sets Equipment (CALSETS)

FOREIGN MILITARY SALES

Afghanistan, Egypt, Japan, Lithuania,
Saudi Arabia, Taiwan, United Arab
Emirates

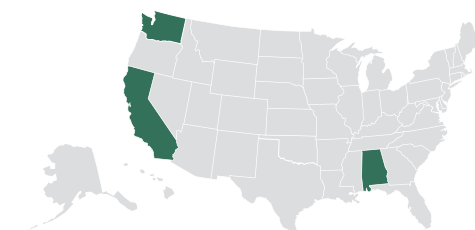
CONTRACTORS

Dynetics, Inc. (Huntsville, AL)
Agilent Technologies, Inc.
(Santa Clara, CA)
Science Applications International Corp.
(SAIC) (Huntsville, AL)
Fluke Corp. (Everett, WA)



AN/GSM-421

AN/GSM-705



Chemical Biological Medical Systems–Diagnostics

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the warfighter with safe, robust, and affordable medical countermeasures against a broad spectrum of chemical, biological, radiological, and nuclear (CBRN) threats and uses government and commercial best practices to acquire Food and Drug Administration (FDA)-approved CBRN medical countermeasures and diagnostics.

DESCRIPTION

The Joint Biological Agent Identification and Diagnostic System (JBAIDS) is 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. The ruggedized and hardened system is configured to support deployed medical personnel with the ability to identify specific biological organisms from clinical and environmental sources and samples. The JBAIDS anthrax, tularemia, brucellosis, and plague detection systems are FDA cleared for diagnostic

use. JBAIDS is operated throughout the combat zone by medical laboratory personnel.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY09:** National Guard fielding complete (26 systems)
- **4QFY09:** Emergency use authorization for Swine Flu (H1N1)
- **1QFY10:** FDA clearance for Avian Flu (H5N1) in vitro diagnostic (IVD) kit

PROJECTED ACTIVITIES

- **1QFY11:** FDA clearance for typhus IVD kit
- **4QFY11:** Complete Navy fielding (31 systems)
- **4QFY11:** FDA clearance for Q-fever IVD kit

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

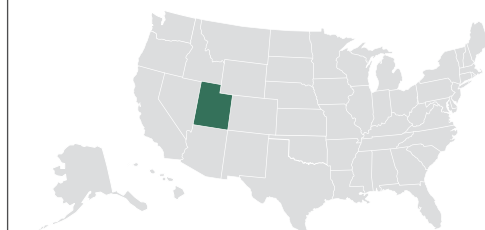
Operations & Support

**Chemical Biological Medical
Systems–Diagnostics****FOREIGN MILITARY SALES**

None

CONTRACTORS

Idaho Technologies (Salt Lake City, UT)



Chemical Biological Medical Systems–Prophylaxis

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the warfighter with safe, robust, and affordable medical countermeasures against a broad spectrum of chemical, biological, radiological, and nuclear (CBRN) threats.

DESCRIPTION

Chemical Biological Medical Systems–Prophylaxis consists of the following components:

Anthrax Vaccine Absorbed (AVA):

The Anthrax Vaccine Absorbed is the only Food and Drug Administration (FDA)-licensed anthrax vaccine in the United States that provides cutaneous, gastrointestinal and aerosol infection by battlefield exposure to *Bacillus anthracis*.

Recombinant Plague Vaccine (rF1V):

The Recombinant Plague Vaccine is a highly purified polypeptide produced from non-sporeforming bacterial cells transfected with a recombinant vector from *Yersinia pestis* to prevent pneumonic plague.

Recombinant Botulinum Toxin Vaccine A/B (rBV A/B):

The Recombinant Botulinum Bivalent Vaccine is comprised of nontoxic botulinum toxin heavy chain (Hc) fragments of serotypes A and B formulated with an aluminum hydroxide adjuvant and delivered intramuscularly prior to potential exposure to botulinum toxins.

Bioscavenger II (BSCAV II):

The Bioscavenger program fills an urgent capability gap in the warfighter's defense against nerve agents by development of a nerve agent prophylactic by rendering protective equipment, in theory, unnecessary. Bioscavenger Increment II consists of Protexia®, recombinant human butyrylcholinesterase produced in the milk of transgenic goats and modified with polyethylene glycol.

Smallpox Vaccine System (SVS):

The Smallpox Vaccine System (SVS) Program 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.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY09:** Plague Vaccine Phase 2a clinical study complete; Plague Vaccine manufacture scale-up and validation initiated; rBV Phase 1b clinical study complete; rBV Phase 2 clinical study initiated
- **1QFY10:** Bioscavenger Phase 1 clinical study complete; Bioscavenger large-scale manufacturing, process qualification, and validation begins
- **3QFY10:** Plague Vaccine Phase 2b clinical study begins
- **4QFY10:** rBV Phase 2 clinical study complete
- **Current:** Smallpox and AVA in Sustainment

PROJECTED ACTIVITIES

- **4QFY11:** rBV A/B large-scale manufacturing process validation complete
- **2QFY13:** rBV A/B Milestone C decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Chemical Biological Medical Systems—Prophylaxis

FOREIGN MILITARY SALES

Plague Vaccine:

Canada, United Kingdom

CONTRACTORS

AVA:

Emergent BioSolutions (Bioport),
(Lansing, MI)

rF1V:

DynPort Vaccine (Frederick, MD)

rBV A/B:

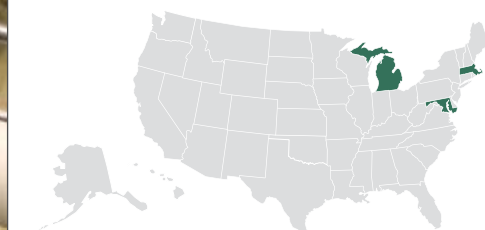
DynPort Vaccine (Frederick, MD)

BSCAV II:

PharmAthene (Annapolis, MD)

SVS:

Acambis plc (Cambridge, MA)
Cangene, Corp. (Winnipeg, Manitoba,
Canada)



Chemical Biological Medical Systems/Transformational Medical Technologies–Therapeutics

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the warfighter with safe, robust, and affordable medical countermeasures against a broad spectrum of chemical, biological, radiological and nuclear (CBRN) threats; uses government and commercial best practices to acquire Food and Drug Administration (FDA)-approved CBRN medical countermeasures and diagnostics.

DESCRIPTION

Chemical Biological Medical Systems/Transformational Medical Technologies–Therapeutics consists of the following components:

Advanced Anticonvulsant System (AAS) will consist of the drug midazolam in an autoinjector. The midazolam-filled autoinjector will replace the fielded Convulsant Antidote for Nerve Agents (CANA) that contains

diazepam. Midazolam, injected intramuscularly, will treat seizures and prevent subsequent neurological damage caused by exposure to nerve agents. AAS will not eliminate the need for other protective and therapeutic systems.

Improved Nerve Agent Treatment System (INATS) is an enhanced treatment regimen against the effects of nerve agent poisoning. The new oxime component of INATS will replace 2-PAM in the Antidote Treatment Nerve Agent Autoinjector (ATNAA).

Medical Radiation Countermeasure (MRADC) Acute radiation syndrome (ARS) manifests as hematopoietic (bone marrow), gastrointestinal, and cerebrovascular subsyndromes depending on the dose of radiation received. The lead MRADC is adult-derived mesenchymal stem cells (Prochymal™) that will treat the gastrointestinal subsyndrome of ARS. The portfolio of MRADC will, when used as a system, provide a robust capability to the warfighter.

Intracellular Bacterial Pathogens (IBP) will mitigate the threat of illness or death, as well as lessen issues with performance degradation resulting from exposure.

Hemorrhagic Fever Viruses (HFV) medical countermeasures will mitigate the threat of illness or death, as well as lessen issues with performance degradation resulting from exposure. Due to the general severity of these diseases, HFV therapeutics will be administered to infected Warfighters while under direct medical observation.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY10:** AAS Phase 2 clinical study complete
- **1QFY10:** MRADC pivotal non-human primate (NHP) studies begin
- **2QFY10:** AAS definitive NHP efficacy study complete
- **2QFY10:** INATS Phase 1 clinical study begins
- **3QFY10:** MRADC pivotal NHP studies complete

- **4QFY10:** INATS Phase 1 clinical study begins
- **4QFY10:** MDRAC Biologics License Application (BLA) submission to FDA

PROJECTED ACTIVITIES

- **1QFY11:** AAS new drug application submission to FDA
- **1QFY11:** INATS Phase 2 clinical study begins
- **1QFY11:** HFV Phase 1 trials begin
- **3QFY11:** HFV Milestone B decision
- **4QFY11:** IBP Phase 1 trials begin
- **4QFY11:** HFV Phase II Pivotal Animal Studies

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

**Chemical Biological Medical
Systems/Transformational Medical
Technologies–Therapeutics**

INATS



FOREIGN MILITARY SALES

None

CONTRACTORS

AAS:

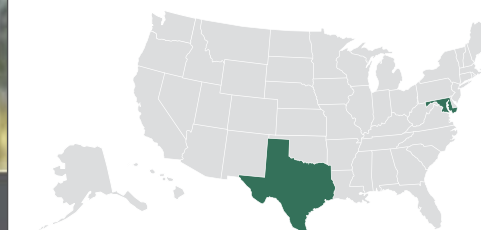
Meridian Medical Technologies
(Columbia, MD)

INATS:

Southwest Research Institute
(San Antonio, TX)

MRADC:

Osiris Therapeutics (Columbia, MD)



Chemical Biological Protective Shelter (CBPS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Enables medical personnel to treat casualties without the encumbrance of individual protective clothing and equipment in a highly mobile, easy-to-use, and self-contained chemical-biological (CB) hardened facility.

DESCRIPTION

The Chemical Biological Protective Shelter (CBPS) is a highly mobile, self-contained system designed to replace the M51 Collective Protection Shelter and the currently fielded un-armored CBPS HMMWV variant. CBPS consists of a Lightweight Multipurpose Shelter (LMS) mounted on an armored M1085A1 Medium Tactical Vehicle (MTV) and a 400-square-foot, airbeam-supported soft shelter. CBPS provides a contamination-free, environmentally controlled working area for medical personnel to obtain relief from the need to wear CB protective clothing for 72 hours of operation.

All ancillary equipment required to provide protection, except the generator, is mounted within the shelter. Medical equipment and crew gear are transported inside the LMS.

CBPS will be assigned to trauma treatment teams/squads of maneuver battalions, medical companies of forward and division support battalions, nondivisional medical treatment teams/squads, division and corps medical companies, and forward surgical teams.

SYSTEM INTERDEPENDENCIES

In this Publication

Family of Medium Tactical Vehicles (FMTV), Single Channel Ground and Airborne Radio System (SINCGARS), Joint Chemical Agent Detector (JCAD)

Other Major Interdependencies

The shelter system is integrated onto an armored MTV.

PROGRAM STATUS

- 2-4QFY10 First article testing

PROJECTED ACTIVITIES

- 2QFY11: Follow-on test and evaluation
- 3QFY11: Production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

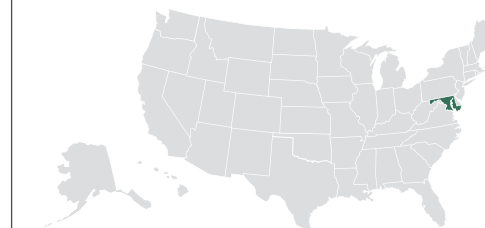
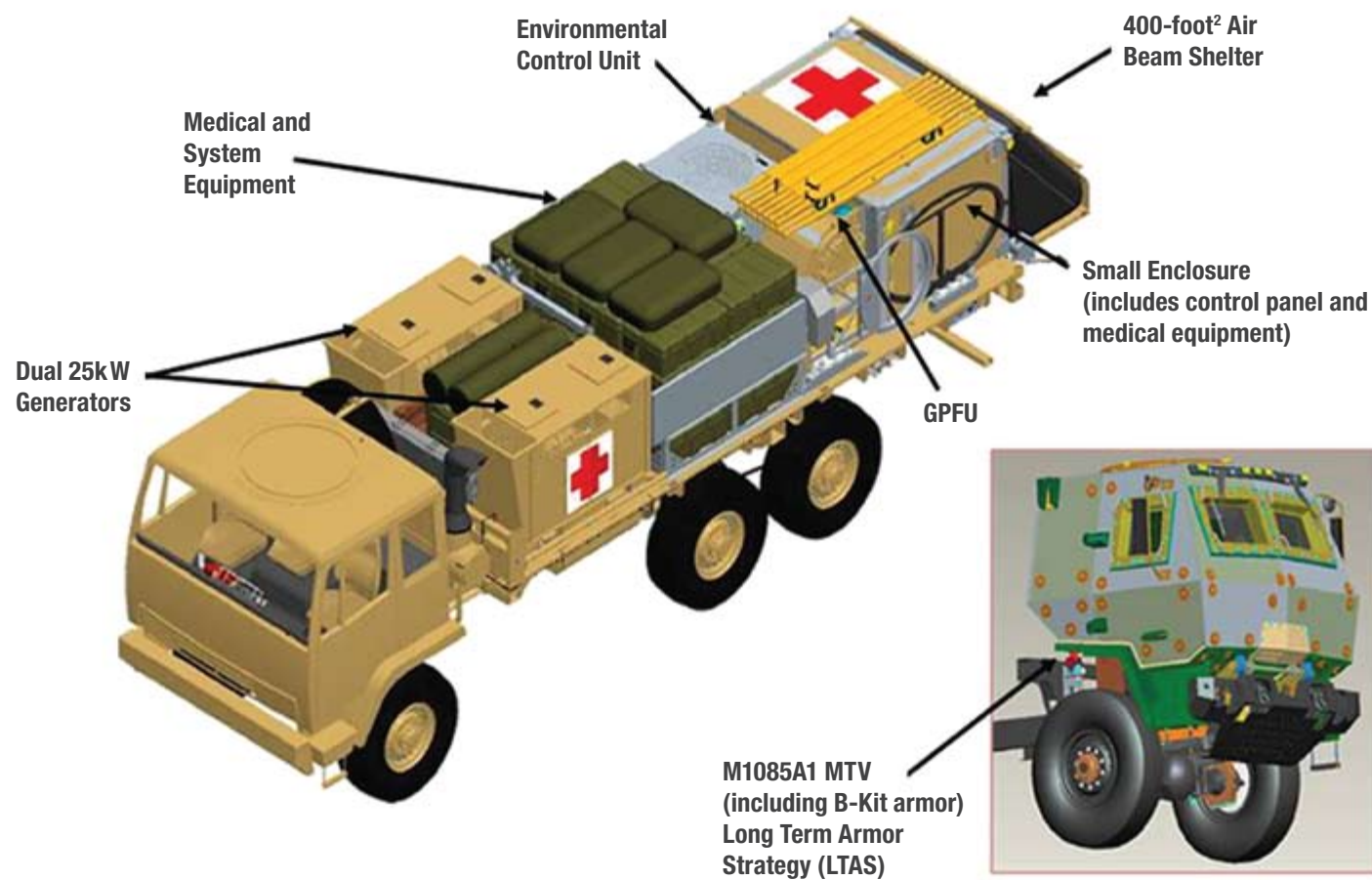
Chemical Biological Protective Shelter (CBPS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Smiths Detection, Inc. (Edgewood, MD)



Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DR SKO)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides chemical, biological, radiological, and nuclear (CBRN) reconnaissance in confined spaces and terrain inaccessible by traditional CBRN reconnaissance mounted platforms/vehicles.

DESCRIPTION

The Chemical, Biological, Radiological, Nuclear (CBRN) Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO) system consists of commercial and government off-the-shelf equipment that provides personnel protection from CBRN hazards, as well as detection, identification, sample collection, decontamination, marking, and hazard reporting of CBRN threats. The system is composed of handheld, man-portable detectors that detect and identify potential Weapons of Mass Destruction (WMD) and/or WMD precursors and determine 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.

From 2008 to 2010, 27 DR SKO-like systems were fielded in support of Joint Urgent Operational Needs Statements (JUONS) to Central Command and the services.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY09:** Approval to field to an additional eight JUONS systems to provide a total of 27 systems to be fielded under urgent materiel releases
- **FY09–10:** Continue JUONS fieldings
- **FY10:** Materiel development decision approval

PROJECTED ACTIVITIES

- **FY10–11:** DR SKO Milestone B decision
- **FY12:** Milestone C, low-rate initial production decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

**Chemical, Biological, Radiological,
Nuclear Dismounted Reconnaissance
Sets, Kits, and Outfits (CBRN DR SKO)**

**Notional
Equipment Set**



Sabre 4000



CDS Kit
Draeger Tubes



IdentiFINDER



Dräger AirBoss
PSS 100 Plus



Universal
Pressure Kit



Kestrel
4500



AN/UDR-14
RADIAC



Motorola
XTS2500i



AHURA
First Defender



XM328
CBRN Marking Kit



Protective Gear
with JCAD



MultiRae Plus



HazMat ID



HazMaster G3



Yanmar Generator 5.5kw



QuickSilver
Analytics (QSA) 102



Individual Protective
Equipment - Shower



Collapsible
Cart



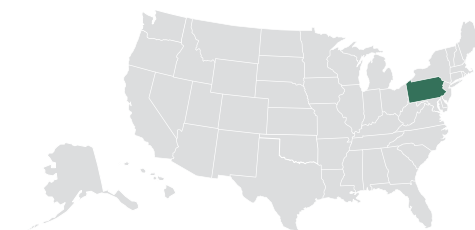
Bio Capture 650

FOREIGN MILITARY SALES

None

CONTRACTORS

ICx Technologies (Pittsburgh, PA)



Chemical Demilitarization

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Enhances national security by eliminating U.S. chemical warfare materiel (CWM) and supporting CWM responses, while ensuring maximum protection for the public, workers, and the environment.

DESCRIPTION

The Chemical Materials Agency (CMA) mission is mandated by public law and includes the design, construction, systemization, operations, and closure of chemical agent disposal facilities in Alabama, Arkansas, Indiana, Maryland, Oregon, Utah, and the Johnston Atoll in the South Pacific. Demilitarization operations have been completed in Indiana, Maryland, and the Johnston Atoll. Stockpile disposal at locations in Colorado and Kentucky is the responsibility of the Assembled Chemical Weapons Alternatives Program, which reports directly to the Office of the Secretary of Defense.

CMA is also responsible for emergency preparedness activities at the chemical weapons storage depots

and assessment and destruction of non-stockpile and recovered chemical warfare materiel.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY09:** Tooele Chemical Agent Disposal Facility becomes fourth chemical agent disposal facility to achieve Star status in the Occupational Safety and Health Administration's Voluntary Protection Program
- **1QFY10:** CMA announced the destruction of the two millionth munition since entry into force of the Chemical Weapons Convention
- **2QFY10:** The Newport Chemical Agent Disposal Facility Resource Conservation and Recovery Act permit is released, marking the completion of the facility's mission
- **3QFY10:** The Non-Stockpile Chemical Material Project completed destruction of all recovered chemical warfare material stored at Pine Bluff, AR

- **4QFY10:** CMA announced the destruction of 75 percent of the chemical agent stockpile since entry into force of the Chemical Weapons Convention

PROJECTED ACTIVITIES

- **1QFY11:** Complete final agent disposal campaign at Pine Bluff, AR
- **3QFY12:** Complete final agent disposal campaign at Anniston, AL; Tooele, UT; and Umatilla, OR

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

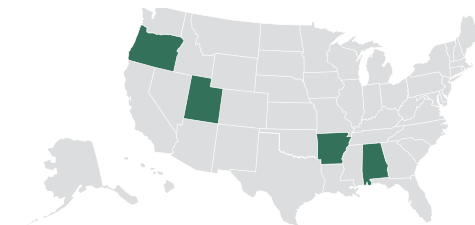
Chemical Demilitarization

FOREIGN MILITARY SALES

None

CONTRACTORS

URS Corp. (Anniston, AL; Pine Bluff, AR; Umatilla, OR; Tooele, UT)



CH-47 Chinook

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Supports a full spectrum of operations including disaster relief, homeland defense and security, and current overseas contingency operations with a Future Force system design.

DESCRIPTION

The CH-47F is the Army's only heavy-lift cargo helicopter, supporting combat operations and many other critical operations other than war. The CH-47F aircraft has a suite of improved features such as an upgraded digital cockpit featuring the Common Avionics Architecture System (CAAS), a new monolithic airframe with vibration reduction and the Digital Automatic Flight Control System (DAFCS) which provides coupled (hands-off) controllability for operations in adverse environments (reduced visibility, brown out, 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 has an empty weight of 24,578

pounds and a maximum gross weight of 50,000 pounds. The CH-47F can lift intra-theater payloads up to 16,000 pounds in high/hot environments.

- **Max gross weight:** 50,000 pounds
- **Max cruise speed:** 160 knots
- **Troop capacity:** 36 (33 troops plus 3 crew members)
- **Litter capacity:** 24
- **Sling-load capacity:** 26,000 pounds center hook, 17,000 pounds forward/aft hook, 25,000 pounds tandem
- **Minimum crew:** 3 (pilot, copilot, and flight engineer)

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS), Air Warrior (AW)

Other Major Interdependencies

ARC-231, BFT, CXP (APX-118), CXP (APX-123), IDM, AMPS

PROGRAM STATUS

- **2QFY07:** Complete initial operational testing
- **4QFY07:** First unit equipped
- **1QFY08:** Multi-year procurement contract award

PROJECTED ACTIVITIES

- **FY13:** Multi-year II contract award
- **4QFY19:** CH-47F fielding complete

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

CH-47 Chinook

FOREIGN MILITARY SALES

Australia

CONTRACTORS

Aircraft and Recap:

Boeing (Philadelphia, PA)

Engine:

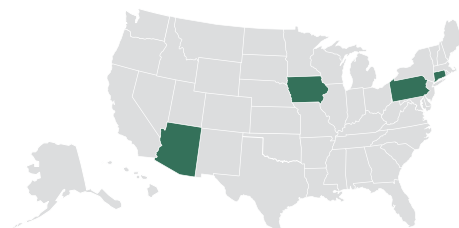
Honeywell (Phoenix, AZ)

Software:

Rockwell Collins (Cedar Rapids, IA)

Engine Controls:

Goodrich (Danbury, CT)



Close Combat Tactical Trainer (CCTT)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides collective training for infantry, armor, mechanized infantry, cavalry units, and their associated staffs, using manned module simulators within a virtual, synthetic environment, to improve readiness, provide more realistic collective training, and support urgent training requirements.

DESCRIPTION

The Close Combat Tactical Trainer (CCTT) is a virtual, collective training simulator that is fully interoperable with the Aviation Combined Arms Tactical Trainer (AVCATT). Crewed simulators, such as the Abrams Main Battle Tank, the Bradley Fighting Vehicle, the High Mobility, Multipurpose Wheeled Vehicle (HMMWV), the Heavy Expanded Mobility Tactical Truck (HEMTT), and the M113A3 Armored Personnel Carrier offer sufficient fidelity for collective mission training. Modular components include the Reconfigurable Vehicle Simulator/Reconfigurable Vehicle Tactical Trainer (RVS/RVTT), which simulates the HMMWV, the Armored Security Vehicle (ASV), and the HEMTT. An additional capability for CCTT

instructor/operators and training units is the Mobile Theater After Action Review (MTAAR). In FY11, CCTT will add a Dismounted Soldier (DS) capability, which will consist of immersive, individual Soldier simulators to train both individual and collective tasks.

Soldiers use command and control equipment to simulate the battle direction of artillery, mortar, combat engineers, and logistics units to support the training mission. A Semi-Automated Forces (SAF) workstation provides supporting units (such as aviation and air defense artillery) and all opposing forces. All battlefield operating systems are represented, ensuring an effective simulation of a combat environment that encompasses daylight, night, and fog conditions. CCTT's virtual terrain databases cover 100 by 150 kilometers, 3.5 kilometers of active visual terrain, and eight kilometers of extended range for M1A2 System Enhancement Program tank and M2A3 Bradley Fighting Vehicle. CCTT supports training of both Active Army and Army National Guard units at installations and posts in the U.S., Europe, Korea, and Southwest Asia.

SYSTEM INTERDEPENDENCIES

In this Publication

One Semi-Automated Force (OneSAF) will provide a common SAF through SE Core in the future.

Other Major Interdependencies

CCTT requires Synthetic Environment Core (SE Core) to provide terrain databases and virtual models.

PROGRAM STATUS

- **1QFY10:** Successfully fielded both fixed and mobile CCTT RVS/RVTT to both CONUS and OCONUS locations
- **3QFY10:** Successfully fielded an Afghanistan virtual terrain database to the USAREUR CCTT facility

PROJECTED ACTIVITIES

- **1QFY11:** Production and fielding of the RVTT to Ft. Sill, OK; Ft. Dix, NJ; Ft. Lee, VA; Ft. Hood, TX; and Ft. Campbell, KY
- **2-3QFY11:** Production and fielding of the RVS/RVTT to Ft. Leonard Wood, MO; Camp Shelby, MS; Ft. Jackson, SC; and Camp Casey, Korea

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Close Combat Tactical Trainer (CCTT)

Fixed Site CCTT Company/Battalion/Task Force



**Commander's Station
Abrams Tank**



Operator Control



**Dismounted
Soldier**



M2/M3



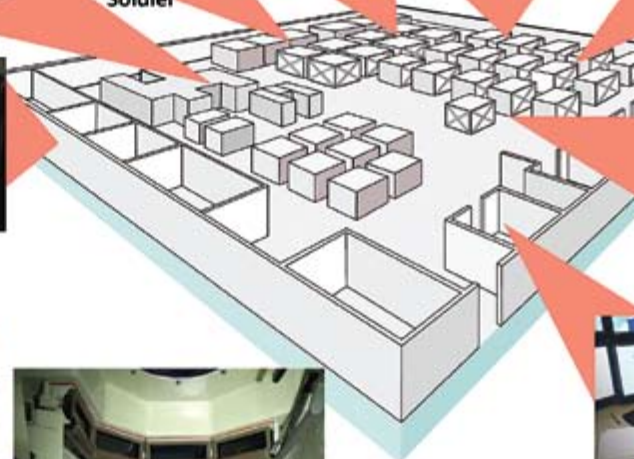
MIA2



MIA1



RVS/RVTT



M113



After Action Review

Mobile CCTT Platoon Set



**Driver's Station
Bradley Fighting Vehicle**

FOREIGN MILITARY SALES

None

CONTRACTORS

RVS/RVTT:

Lockheed Martin (Orlando, FL)

Post Deployment Software Support (PDSS):

Kaegan Corp. (Orlando, FL)

Visual System:

Rockwell Collins (Salt Lake City, UT)

Dedicated Computing (Waukesha, WI)

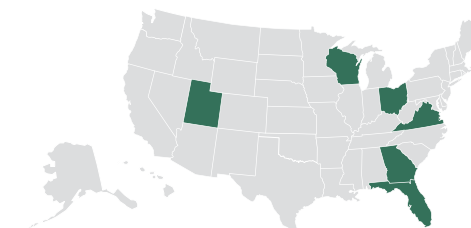
Manyear Equivalents:

Electronic Consulting Services, Inc.
(Fairfax, VA)

RVTT:

DRS Mobile Environmental (Cincinnati, OH)

Meggitt Training (Suwanee, GA)



Combat Service Support Communications (CSS Comms)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a worldwide commercial satellite communications network, engineering services, Integrated Logistics Support, infrastructure, and portable remote terminal units in support of Army Combat Service Support (CSS) Logistics Management Information Systems operating from garrison or while deployed.

DESCRIPTION

Combat Service Support Communications (CSS Comms) includes the Combat Service Support Automated Information Systems Interface (CAISI) and the Combat Service Support Satellite Communications (CSS SATCOM) system. CAISI allows current and emerging battlefield CSS automation devices to electronically exchange information via tactical networks. CAISI also interfaces with other battlefield and sustaining base automated systems. CAISI provides unit

commanders and logistics managers an interface device to support CSS doctrine for full spectrum operations. This capability supports a non-contiguous concentration of users and the transfer of real-time information in both fixed and mobile operating environments. CAISI allows deployed Soldiers to connect CSS automation devices to a secure wireless network and electronically exchange information via tactical or commercial communications.

CAISI employs a deployable wireless LAN infrastructure linking Standard Army Management Information System (STAMIS) computers in a seven square-kilometer area. It is certified in accordance with Federal Information Processing Standards (FIPS) 140-2 Level 2-approved encryption for use with sensitive information.

CSS SATCOM includes commercial off-the-shelf Ku-band auto-acquire satellite terminals, called Combat Service Support Very Small Aperture Terminals (CSS VSATs), repackaged in fly-away transit cases, along with a contractor-operated fixed infrastructure of four primary and three 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 Information level, is rapidly deployable anywhere in the world, and is fully integrated into the Non-secure Internet Protocol Router Network (NIPRNET) segment of the Global Information Grid (GIG). CSS SATCOM eliminates the often-dangerous need for Soldiers to hand-deliver requisitions via convoys in combat areas.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies
CAISI, CSS SATCOM

PROGRAM STATUS

- **4QFY09:** CSS SATCOM supporting 2,400 systems on 16 networks with expanded coverage to Central Africa and the Pacific Rim
- **4QFY09:** CSS SATCOM granted Authority to Operate (ATO) for two years
- **4QFY09:** Completed reset/overhaul operations of 171 CSS SATCOM systems from Operation Iraqi Freedom/ Operation Enduring Freedom

- **1QFY10–Current:** Provided 24-hour response to deploying units (48 VSATs) in support of the Haiti Operation Unified Response earthquake efforts
- **3QFY10:** Fielded 100 percent of CAISI 2.0 and CSS VSAT USAR fielding authorization, ARNG 100 percent CSS VSAT fielded
- **3QFY10:** Trained and equipped Army units with a total of 21,661 CAISI and 3,220 CSS VSATs to date
- **4QFY10:** CAISI 2.0 fieldings begin for U.S. Army Europe (USAREUR) units based in Germany

PROJECTED ACTIVITIES

- **2QFY09–2QFY11:** Continue to field CAISI and CSS VSAT systems and train units in accordance with the ARPL
- **2QFY09–2QFY11:** Achieve pure fleet CAISI 2.0 by replacing remaining CAISI 1.1
- **1QFY11:** Finalize CSS VSAT and CAISI Technical Manuals and distribute with newly fielded systems

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Combat Service Support Communications (CSS Comms)

FOREIGN MILITARY SALES

None

CONTRACTORS

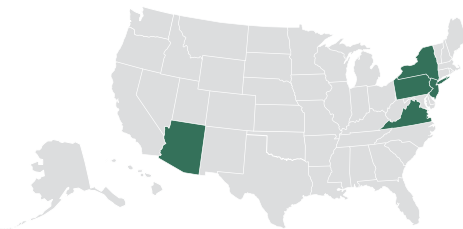
Equipment:

Telos Corp. (Ashburn, VA)
LTI DataComm, Inc. (Reston, VA)
Juniper Networks (Herndon, VA)
L-3 Global Communications Solutions, Inc.
(Victor, NY)

Segovia Global IP Services (Herndon, VA)

Project support/training:

Systems Technologies (Systek), Inc.
(West Long Branch, NJ)
Tobyhanna Army Depot (Tobyhanna, PA)
Software Engineering Center–Belvoir
(SEC-B) (Ft. Belvoir, VA)
U.S. Army Information Systems
Engineering Command (USAISEC)
(Ft. Huachuca, AZ)
CACI (Eatontown, NJ; Arlington, VA)
DISA Satellite Transmission Services–
Global NETCOM (Ft. Huachuca, AZ)



Command Post Systems and Integration (CPS&I)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides commanders standardized and mobile command posts with a tactical, fully integrated, and digitized physical infrastructure to execute Networked-enabled Mission Command (NeMC) and achieve information dominance.

DESCRIPTION

The Command Post Systems and Integration (CPS&I) product office provides commanders with standardized, mobile, and fully integrated command posts for the modular expeditionary force, including support for Future Force capabilities and Joint and coalition forces. The Standardized Integrated Command Post System (SICPS)-based command post is where commanders and their staffs collaborate, plan, and execute NeMC, maintain situational awareness using the Common Operational Picture (COP) and make decisions based on

available information. Per the SICPS Capabilities Production Document (CPD), a family of Command Post Platforms (CPP) with standardized shelters, Command Center Systems (CCS), Command Post Communications Systems (CPCS) and Trailer-Mounted Support Systems (TMSS), is currently being fielded to the Army's Active Component, National Guard and Army Reserve units.

SICPS provides the integrated NeMC platform and infrastructure to allow shared situational understanding of the COP based on the various Army and Joint command and control, communications, and network systems in the command post. Scalable and modular, SICPS supports echelons from battalion through Army Service Component Command providing tactical flexibility to support all phases of operations. By integrating the tactical Internet with current and future mission command capabilities, command post operations are revolutionized through a combination of state-of-the-art data processing,

communications and information transport methods to achieve information dominance.

SYSTEM INTERDEPENDENCIES

In this Publication

None

Other Major Interdependencies

Warfighter Information Network-Tactical (WIN-T), Battle Command Common Services (BCCS) Server, Distributed Common Ground Systems (DCGS), Mobile Electric Power (MEP), Command Post of the Future (CPOF)

PROGRAM STATUS

- **3QFY07–4QFY10:** Completed SICPS fielding and New Equipment Training (NET) for 184 brigade level or higher units
- **3QFY07–4QFY10:** Continually supported reset of all SICPS equipped units returning from Operation Enduring Freedom/ Operation Iraqi Freedom (OEF/OIF)
- **3QFY08:** Initiated first delivery order for Trailer Mounted Support System (TMSS)

- **1QFY09:** Completed CPP-Light system requirements review/ preliminary design review
- **3QFY09:** Conducted CPP-Light critical design review
- **3QFY09:** Supported Joint Users Interoperability Communications Exercise 2009 (JUICE 2009) to evaluate emerging technologies in a Joint operational environment

PROJECTED ACTIVITIES

- **1–4QFY11:** Continue SICPS fielding and NET to 33 brigade level, or higher, units in accordance with Unit Set Fielding schedule and support Reset of units returning from OIF and OEF
- **2QFY11:** Conduct CPP-Light developmental test
- **3QFY11:** Conduct CPP-Light limited user test
- **4QFY11:** Field increased SICPS capability to support the conversion of 1/1 AD HBCT to SBCT 8
- **1–4QFY12:** Continue SICPS fielding and NET to 14 brigade level, or higher, units in accordance with Unit Set Fielding schedule and support Reset of units returning from OIF and OEF

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Command Post Systems and Integration (CPS&I)

FOREIGN MILITARY SALES

None

CONTRACTORS

Command Post Platform/NET:

Northrop Grumman (Huntsville, AL)

SICPS:

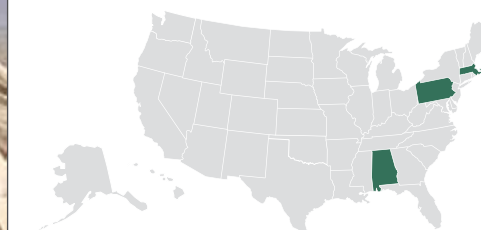
SETA (Huntsville, AL)

Materiel Fielding:

Tobyhanna Army Depot (Tobyhanna, PA)

Common Hardware Systems:

General Dynamics C4 Systems, Inc.
(Taunton, MA)



Common Hardware Systems (CHS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides state-of-the-art, fully qualified, interoperable, compatible, deployable, and survivable hardware for command, control, and communications at all echelons of command for the Army and other DoD services.

DESCRIPTION

The Common Hardware Systems (CHS) program is the command and control enabler for Army Transformation, providing modularity, interoperability, and compatibility to support implementation of net-centricity. The CHS contract includes a technology insertion capability to continuously refresh the network-centric architectural building blocks, add new technology, and prevent hardware obsolescence. New products compliant with technology advances such as Internet protocol version 6 (IPv6) can be easily added to the CHS offerings. CHS products include a spectrum of computer processors such as personal digital assistants (PDAs), high-end tactical computers, networking equipment, peripherals, displays, installation kits, and

miscellaneous hardware needed for system integration. CHS products can be procured in four versions: version 1 (non ruggedized), version 1+ (Moderate ruggedization of v1), version 2 (ruggedized), and versions 3 (fully rugged, MIL-SPEC Rugged Handheld Unit).

CHS also provides worldwide repair, maintenance, logistics, and technical support through strategically located contractor-operated regional support centers (RSC) for tactical military units and management of a comprehensive five-year warranty. CHS hardware version 1 includes commercial workstations, peripherals, and networking products. Version 1+ is Version 1 hardware that is modified for better survivability in the field with a minimal increase in cost. Version 2 includes ruggedized workstations, peripherals, and networking products. Version 3 includes near-military specification rugged handheld units.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY08:** Completed high-altitude electromagnetic pulse test
- **4QFY08:** Tactical Switching Requirement-3 (TSR-3) contract signed
- **2QFY09–2QFY11:** Continue CHS-3 hardware deliveries
- **2QFY09:** (As Required) CHS Operation Enduring Freedom/ Operation Iraqi Freedom repair facilities
- **3QFY09:** Joint User Interoperability Communications Exercise
- **4QFY09:** Awarded Total Asset Visibility contract
- **3QFY10:** CHS-4 Solicitation released to industry

PROJECTED ACTIVITIES

- **2QFY11:** CHS-4 contract award
- **2QFY16:** CHS-5 contract award

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Common Hardware Systems (CHS)

FOREIGN MILITARY SALES

Australia, Colombia

CONTRACTORS

Engineering:

Engineering Solutions and Products (ESP)
(Oceanport, NJ)

CACI (Eatontown, NJ)

Sensor Technologies (Red Bank, NJ)

Logistics, Ordering:

Engineering Solutions and Products (ESP)
(Oceanport, NJ)

Lab/Tech Support:

Northrop Grumman (Eatontown, NJ)

Consultant:

Sensor Technologies (Red Bank, NJ)



CHS Hardware



WIN-T Transit Cases



Antenna Interface
Case (AIC)



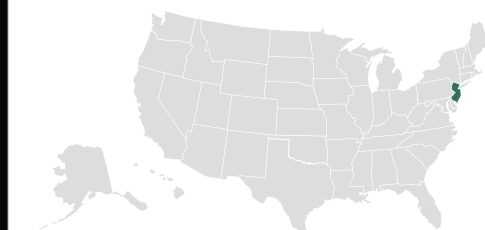
Multi-processor Ethernet-
switched Combat Chassis



Uninterruptible Power
Supply (UPS)

CHS hardware includes:

- BCCS v3 Operational Transit Cases (OTCs) (Battle Command Common Services—version 3)
- Standalone Computer Unit (SCU-2)
- Miltope TSC-v3-GM45 RLC (Rugged Laptop Computer) Army and USMC AFATDS configurations
- Antenna Interface Case (AIC)
- CISC-2 Servers
- Multi processor Ethernet-switched Combat Chassis—5 Slice (MECC-5), 7 Slice (MECC-7)
- Modular Four-Slice Multiple Processor Unit (M4S MPU-2)
- Laptops and Servers
- Routers, Switches, and Firewalls
- Network and Communications
- Displays (LCDs)
- Peripherals
- Tablets and Handheld
- Uninterruptible Power Supplies (UPS) and Power Converter/Conditioners (PCC)
- Storage/RAID



Common Remotely Operated Weapon Station (CROWS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Enables Soldiers to acquire and engage targets while protected inside an armored vehicle.

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. 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, .50 Caliber M2 Machine Gun, M240B Machine Gun, and M249 Squad Automatic Weapon.

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.

Potential enhancements include integration of other weapons and escalation-of-force systems.

SYSTEM INTERDEPENDENCIES

In this Publication

Small Arms–Crew Served Weapons, Small Caliber Ammunition

Other Major Interdependencies

CROWS mounts the MK19, M2, M240B, or M249 machine guns

PROGRAM STATUS

- **Current:** Fielded over 2,000 CROWS under urgent materiel release in support of Operation Iraqi Freedom and Operation Enduring Freedom
- **Current:** CROWS is integrated on multiple types of platforms ranging from the High Mobility Multipurpose Wheeled Vehicle (HMMWV) to the Abrams Tank
- **Completed:** Production verification testing and initial operational test and evaluation

PROJECTED ACTIVITIES

- **Continue:** Fielding and sustainment of CROWS on Mine Resistant Ambush Protected (MRAP) vehicle, MRAP All Terrain Vehicle (MATV), and Remotely Controlled Vehicle (RCV) platforms, in theaters of operation under urgency
- **1–2QFY11:** Type classification planned

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

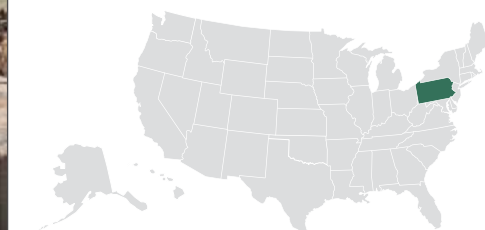
Common Remotely Operated Weapon Station (CROWS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Kongsberg Defense & Aerospace
(Johnstown, PA)



Counter Defilade Target Engagement (CDTE)–XM25

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the infantry Soldier with a leap-ahead overmatch capability that will dramatically increase lethality and range with a family of 25mm programmable airburst munitions.

DESCRIPTION

The XM25 Counter Defilade Target Engagement (CDTE) system enables the small unit and individual Soldier to engage defilade targets by providing a 25mm airburst capability that can be used in all operational environments. The CDTE is a direct-fire, semi-automatic, shoulder-fired, man-portable weapon system. An individual Soldier employing basic rifle marksmanship skills can effectively engage exposed or defilade targets in just seconds.

The system allows the warfighter to quickly and accurately engage targets by producing an adjusted aim point based on range, environmental factors, and user inputs. The target acquisition/fire control integrates thermal capability with direct view optics,

laser rangefinder, compass, fuze setter, ballistic computer, laser pointer and illuminator, and an internal display.

The CDTE system reduces the reliance of small units on non-organic assets (mortars, artillery, and air support) and the need to compete for priority of fires when time is critical. In addition to airbursting ammunition, a family of ammunition is being developed to support other missions, which could include armor-piercing and nonlethal scenarios.

Caliber: 25mm

Weight: 12–12.5 pounds

Length: 29.5 inches

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY08:** Army Requirements Oversight Council approved initial capabilities document
- **3QFY08:** Milestone A decision
- **4QFY08–3QFY09:** Conducted government design verification/safety tests
- **3QFY10:** Entered Joint Requirements Oversight Council approval of its capabilities development document

PROJECTED ACTIVITIES

- **1QFY11:** Enter engineering and manufacturing development phase
- **2–4QFY11:** Conduct early user assessment



ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Counter Defilade Target Engagement (CDTE)-XM25

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime:

Alliant Techsystems (Plymouth, MN)

Airburst Weapon:

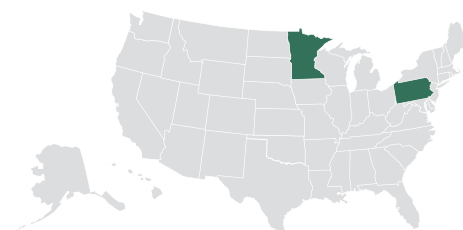
H&K Gmbh (Oberdorf, Germany)

Target Acquisition/Fire Control:

L-3 Communications/Brashear
(Pittsburgh, PA)

Ammunition:

Alliant Techsystems (Plymouth, MN)



Countermine

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides Soldiers and maneuver commanders with a full range of countermine capabilities, plus immediate solutions to counter improvised explosive devices (IEDs) and other explosive hazards allowing the maneuver commander to achieve assured mobility on the battlefield.

DESCRIPTION

The Countermine product line comprises several different systems:

- The **AN/VSS-6 Husky Mounted Detection System (HMDS)** is a ground-penetrating radar that upgrades the Vehicle Mounted Mine Detection (Husky) platform with the capability to detect and mark buried, low metal and metallic-cased IEDs and anti-tank landmines.
- The **Vehicle Optics Sensor System (VOSS)** is a multi-sensor camera system that allows route clearance and explosive ordnance disposal (EOD) Medium Mine Protected Vehicles (MMPV) the capability for on-the-move detection of IEDs.

- The **Interrogation Arm** provides route clearance MMPVs the capability for mechanical standoff interrogation of suspected IEDs.
- The **AN/PSS-14 Mine Detecting Set** is a handheld multi-sensor mine detector.
- The **Area Mine Clearance System (AMCS)** is a flail system that destroys all types of landmines.
- The **Autonomous Mine Detection System (AMDS)** will detect, mark, and neutralize hazards from a small, robotic platform.
- The **EOD** equipment product line provides capabilities such as the **Man-Transportable Robotic System (MTRS)** and dual-use blasting machines.
- The **Airborne Surveillance, Target Acquisition, and Minefield Detection System (ASTAMIDS)** is a small, multi-spectral sensor payload on aerial platforms.
- The **Ground Standoff Mine Detection System (GSTAMIDS)** provides mine detection, marking, and neutralization for maneuver forces.

SYSTEM INTERDEPENDENCIES

In this Publication

Mine Protection Vehicle Family (MPVF)

Other Major Interdependencies

AMDS, ASTAMIDS, GSTAMIDS, HMDS

PROGRAM STATUS

- **Current:** AN/VSS-6 HMDS, VOSS, and IED Interrogation Arm production and fielding continues in support of overseas contingency operations
- **Current:** AN/PSS-14 and MTRS full-rate production and Army-wide fielding continues through FY15

PROJECTED ACTIVITIES

- **1QFY11:** AMDS Milestone B
- **3QFY11:** AMCS full-rate production decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Countermine

FOREIGN MILITARY SALES

IED Interrogation Arm:

Netherlands

VOSS:

Canada

CONTRACTORS

AN/PSS-14:

L-3 CyTerra Corp. (Waltham, MA;
Orlando, FL)

ASTAMIDS:

Northrop Grumman Integrated Systems
(Melbourne, FL)

GSTAMIDS:

BAE Systems (Austin, TX)

VOSS:

Lockheed Martin Gyrocam Systems LLC
(Sarasota, FL)

IED Interrogation Arm:

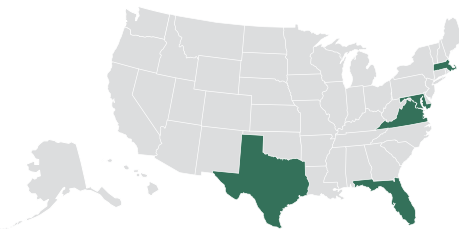
FASCAN International (Baltimore, MD)

HMDS:

NIITEK (Sterling, VA)

AMCS:

A/S Hydrema (Denmark)



Counter-Rocket, Artillery and Mortar (C-RAM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Integrates multiple Army- and DoD-managed systems and commercial off-the-shelf systems with a command and control system to provide protection of fixed and semi-fixed sites from rockets and mortar rounds.

DESCRIPTION

The Counter-Rocket, Artillery, and Mortar (C-RAM) system was developed in response to a Multi-National Force-Iraq Operational Needs Statement (ONS) that was validated in September 2004. An innovative system-of-systems approach was implemented in which multiple DoD Program of Record systems were integrated with two commercial-off-the-shelf (COTS) items to provide seven C-RAM functions: SENSE, WARN, RESPOND, INTERCEPT, Command and Control (C2), SHAPE, and PROTECT.

C-RAM component systems are: Forward Area Air Defense Command and Control (FAAD C2) system and Air and Missile Defense Workstation for C2; Lightweight Counter Mortar Radar and Firefinder Radars for

SENSE; Landbased Phalanx Weapon System for INTERCEPT; and Wireless Audio/Visual Emergency System and a wireless LAN for WARN. RESPONSE is provided thru C-RAM integration with Army/USMC battle command systems and the USAF Tactical Automated Security System.

Using this system-of-systems approach, C-RAM completed development, integration, and testing in April 2005, meeting the requirements of the ONS. The C-RAM systems was fielded five months after initial funding and just eight months after ONS validation.

In transition to a Program of Record, the C-RAM WARN capability will be fielded to all Army Brigade Combat Teams as Increment 1 of the Indirect Fire Protection Capability (IFPC).

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), FAAD C2, Sentinel

Other Major Interdependencies

Army and Marine Corps Battle Command Systems, Sentinel Radar

PROGRAM STATUS

- **4QFY04:** C-RAM ONS validated
- **2QFY05–3QFY05:** C-RAM Validation Test
- **2QFY05–1QFY08:** C-RAM SENSE and WARN fielded
- **3QFY05–2QFY07:** C-RAM INTERCEPT fielded
- **4QFY10:** Increment 1 CPD validation
- **Current:** Sustainment

PROJECTED ACTIVITIES

- **1QFY12:** Increment 1 low-rate initial production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Counter-Rocket, Artillery and Mortar (C-RAM)



FOREIGN MILITARY SALES

Australia, United Kingdom

CONTRACTORS

Hardware/Integration/Fielding/CLS:

Northrop Grumman (Huntsville, AL)

Land-Based Phalanx Weapons System:

Raytheon Missile Systems (Tucson, AZ)

Software Development/Maintenance:

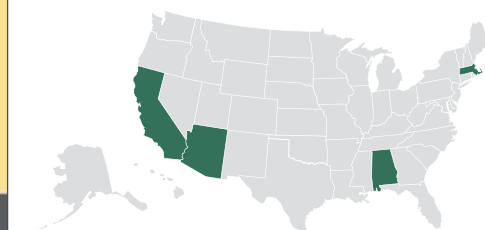
Northrop Grumman (Redondo Beach, CA)

Common Hardware, Software:

General Dynamics (Taunton, MA)

Shelters & Training:

Northrop Grumman (Huntsville, AL)



Defense Enterprise Wideband SATCOM System (DEWSS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides combatant commanders, deployed warfighters, and senior leadership with secure, high-capacity satellite connectivity enabling reachback for voice, video, and data communications and transfer of intelligence information.

DESCRIPTION

The Defense Enterprise Wideband SATCOM System (DEWSS) provides strategic Army and DoD satellite communications (SATCOM) infrastructure, enabling National and Senior Leader communications, JCS-validated command, control, communications, and intelligence (C3I) requirements, tactical reachback to sustaining base for deployed warfighters, and transport for critical intelligence information transfer to deployed forces worldwide. DEWSS is modernizing the enterprise satellite

terminals, baseband systems, and payload and network control systems required to support warfighter use of the high-capacity Wideband Global SATCOM (WGS) satellite constellation, which DoD began launching in October 2007. DEWSS capabilities include super high frequency (SHF), beyond-line-of-sight communications; tactical reachback via DoD Teleport and Standardized Tactical Entry Point (STEP) sites; survivable communications for critical nuclear command and control; and an anti-jam, High-Altitude Electromagnetic Pulse (HEMP) hardened, anti-scintillation capability for key strategic forces.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY09:** Modernization of Enterprise Terminals (MET) contract awarded
- **3QFY09:** 350 Enhanced Bandwidth Efficient Modems (EBEM) fielded worldwide, with Automatic Uplink Power Control (AUPC)

- **3QFY09:** KaSTARS completed four terminal installations (Landstuhl, Germany; Camp Roberts, CA; and two at Lago DiPatria, Italy)
- **3Q-4QFY09:** KaSTARS support to WGS-2 launch
- **4QFY09:** Wideband Global SATCOM KaSTARS terminal performance certification awarded
- **4QFY09:** DSCS Integrated Management System (DIMS) version 5.2 materiel release
- **4QFY09:** Common Network Planning Software (CNPS) version 2.1 materiel release
- **1QFY10:** MET Preliminary Implementation Review (IPR)
- **2QFY10:** Critical Implementation Review (CIR)
- **2QFY10:** Provide Internet protocol capability to EBEM
- **2QFY10:** USC-28 completed modem refurbishment (Wahiawa, HI)
- **3QFY10:** CNPS version 3.2 critical design review
- **3QFY10:** Replacement Patch and Test Facility (RPTF) production contract award

PROJECTED ACTIVITIES

- Major Digital Communications Satellite Subsystem (DCSS) technology refresh/modernization to coincide with MET terminal installations
- **1QFY11:** Complete installation and checkout of Wahiawa, HI starter kit
- **2QFY11:** Wideband Power Control Management System (WPCMS) contract award
- **3QFY11:** Worldwide EBEM fielding complete
- **4QFY11:** Replacement PTF production complete
- **1QFY12:** MET first article test/acceptance

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

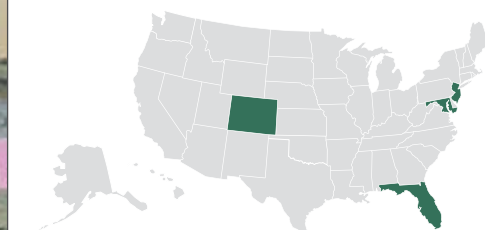
Defense Enterprise Wideband SATCOM System (DEWSS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Johns Hopkins University Applied Physics
Laboratory (Laurel, MD)
Northrop Grumman (Winter Park, FL)
ITT (Colorado Springs, CO)
Harris Corp. (Melbourne, FL)
Computer Sciences Corp. (CSC)
(Eatontown, NJ)



Distributed Common Ground System–Army (DCGS-A)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides timely, multi-intelligence battle management and targeting information to field commanders at all echelons, improves data access, and reduces the forward footprint.

DESCRIPTION

Distributed Common Ground System–Army (DCGS-A) provides an integrated intelligence, surveillance, and reconnaissance (ISR) ground processing system, operating in a secure, distributed and collaborative environment, enabled by net-centric environments. DCGS-A will serve as the primary Army ISR ground processing for Joint and National airborne, spaceborne, and ground sensor platforms. This system enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence, and to synchronize Joint

and combined arms combat power to see first, understand first, act first, and finish decisively.

While DCGS-A consolidates and replaces nine current-force family of systems, its core functions remain receipt and processing of select ISR sensor data, control of select Army sensor systems, intelligence synchronization, ISR planning, reconnaissance and surveillance integration, fusion of sensor information, and direction and distribution of relevant threat, nonaligned, friendly, and environmental (weather and geospatial) information. The DCGS-A system improves data access, reduces the forward footprint, and increases interoperability in fixed, mobile, and embedded configurations.

DCGS-A will support three primary roles: as an analyst tool set, DCGS-A enables the user to collaborate, synchronize, and integrate organic and non-organic direct and general-support collection elements with operations; as the ISR component of the Army Battle Command, DCGS-A can

discover and use all relevant threat, noncombatant, weather, and geospatial data and evaluate technical data and information on behalf of a commander; and DCGS-A provides organizational elements the ability to control select sensor platforms/payloads and process the collected data.

SYSTEM INTERDEPENDENCIES

In this Publication

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

Other Major Interdependencies

Battle Command System (BCS)–Army, DCGS Family of Systems (services), Global Information Grid (GIG), Long Endurance Multi-intelligence Vehicle (LEMV), Network Enabled Command Capability (NECC)

PROGRAM STATUS

- **1QFY09:** Version 3.1 (v3.1) Joint certification received from JITC
- **1QFY09:** v3.1 limited user test (LUT) was completed
- **2QFY09:** Field DCGS-A v3.1 to Operation Iraqi Freedom and Operation Enduring Freedom

- **3QFY09:** Begin worldwide fielding of v3.1; v3.1 displaces All Source Analysis System–Light (ASAS-L)
- **4QFY09:** DCGS-A Mobile Basic (MB) design update review
- **4QFY09:** DCGS-A was a key system in JFCOM Lead Empire Challenge 2009, which demonstrated technology enhancements in collection and sharing of real-time ISR data
- **1QFY10:** DCGS-A v3.1 transition to post-production software support
- **4QFY10:** JFCOM Lead Empire Challenge 2010, demonstration of Joint Interoperability and Netcentric Operations

PROJECTED ACTIVITIES

- **1QFY11:** DCGS-A MB maintenance demonstration
- **1QFY11:** DCGS-A MB logistics demonstration
- **1QFY11:** DCGS-A MB FCA/PCA
- **3QFY11:** DCGS-A MB LUT
- **1QFY12:** DCGS-A MB MS C/LRIP

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Distributed Common Ground System—Army (DCGS-A)

FOREIGN MILITARY SALES

None

CONTRACTORS

Mobile Basic Prime Contractor for System Integration and Design:

Northrop Grumman (Linthicum, MD)

Software Engineering:

Azimuth Inc. (Morgantown, WV)

All Source Integration:

Lockheed Martin (Denver, CO)

GMTI Integration:

General Dynamics (Scottsdale, AZ)

Program Support:

CACI (Tinton Falls, NJ)

Engineering Support:

MITRE (Eatontown, NJ)

Battle Command Integration and Interoperability:

OverWatch Systems (Austin, TX)

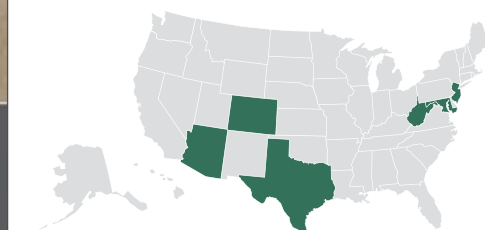
Program Support, System Engineering & Architecture:

Booz Allen Hamilton (Eatontown, NJ)

MITRE (Eatontown, NJ)

DCGS Integrated Backbone (DIB):

Raytheon (Garland, TX)



Distributed Learning System (DLS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Acquires, deploys, and maintains a worldwide, distributed learning system to ensure Soldiers receive critical training for mission success.

DESCRIPTION

The Distributed Learning System (DLS) provides a worldwide information technology infrastructure that innovatively combines hardware, software and telecommunications resources with training facilities and web-based applications to electronically deliver course content for training of Soldiers and Department of the Army (DA) Civilians anytime, anywhere. DLS leverages technology to increase training efficiencies, increase individual and unit readiness, support Soldiers' career advancement and improve their quality of life.

DLS provides to the user:

- Access to Army e-Learning, web-based training, consisting of more than 5,400 commercial business, information technology, and 32 Rosetta Stone foreign language courses

- Globally located Digital Training Facilities (DTFs) capable of delivering multimedia courseware for individual or group training via computer or Video Tele-Training (VTT)
- Enterprise management of the DLS infrastructure, with customer support for training applications.
- The Army Learning Management System (ALMS), for web-based delivery of multimedia training, and streamlined, automated training management functions
- Deployed Digital Training Campuses (DDTC) to deliver multimedia courseware to deployed Soldiers

SYSTEM INTERDEPENDENCIES

In this Publication

General Fund Enterprise Business Systems (GFEBS)

Other Major Interdependencies

Army Knowledge Online is used for identification and authorization and to gain access to the ALMS. Student training results are transmitted via the ALMS to the Army Training

Requirements and Resources System (ATRRS) as the system of record for Army training.

PROGRAM STATUS

- **2QFY04–4QFY10:** Sustained a centrally managed global training enterprise; electronically delivered training in military occupational specialties and self-development; supported migration of courseware to ALMS, began fielding DDTC; increased Army e-Learning and Rosetta Stone (foreign language training) enrollments

PROJECTED ACTIVITIES

- **2QFY11:** Upgrade ALMS to Saba 5.5 software
- **4QFY11:** Complete fielding of 14 DDTCs
- **1QFY11–4QFY21:** Continue to sustain all fielded DLS training capabilities; continue to produce and deploy a total of 50 DDTCs

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Distributed Learning System (DLS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Army Learning Management System (ALMS):

IBM (Fairfax, VA)

DTF Management:

N-Link Corp (Bremerton, WA)

Language Training:

Rosetta Stone (Harrisonburg, VA)

Enterprise Management Services:

IBM (Fairfax, VA)

Army e-Learning:

Skillssoft Corp. (Nashua, NH)

Deployed Digital Training Campus:

Lockheed Martin (Alexandria, VA)

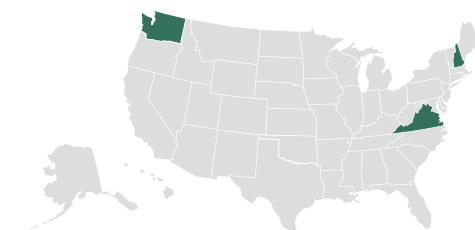
Program Management Support

Services:

MPRI, an L-3 Company (Alexandria, VA)

VTT Communications Support:

Sprint Communications Co. (Reston, VA)



Dry Support Bridge (DSB)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Supports military load classification 100 (wheeled)/80 (tracked) vehicles over 40-meter gaps via a modular military bridge.

DESCRIPTION

The Dry Support Bridge (DSB) is a mobile, rapidly erected, modular military bridge system. DSB is fielded to Multi-Role Bridge Companies (MRBCs) and requires a crew of eight Soldiers to deploy a 40-meter bridge in fewer than 90 minutes (daytime). DSB sections have a 4.3-meter road width and can span a 40-meter gap or two 20-meter gaps at military load classification (MLC) 100 (wheeled)/80 (tracked) normal crossing and MLC 110 (W) caution crossing. The system includes a DSB bridge, a launcher mounted on a dedicated Palletized Load System (PLS) chassis that deploys the modular bridge sections, and seven M1077 Flatracks to transport the bridge sections. The bridge modules are palletized onto seven flat racks and transported by equipment organic to the MRBC. DSB is designed to replace the M3 Medium Girder Bridge.

DSB modular structure allows launch and retrieval from either end without a dedicated or special training area and can be placed directly over pavement to reinforce damaged sections, bridges, or spans. Air transport for the DSB system is accomplished by C-130 if divided (bridge: one flat-rack per a/c; launcher vehicle: split into 3 loads, five hours work), or by C-17 and C-5 intact.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

DSB operations rely and are interdependent upon fully mission-capable M1977 CBTs and M1076 PLS trailer assets within a fully MTOE-equipped MRBC.

PROGRAM STATUS

- **1QFY09:** Fielded to 35th Engineer Company
- **1QFY09:** Fielded to 739th MRBC
- **3QFY10:** Fielded to 1438th MRBC
- **4QFY10:** Fielded to 957th MRBC

PROJECTED ACTIVITIES

- **1QFY11:** Fielding to 1041st MRBC
- **2QFY11:** Fielding to 50th MRBC
- **2QFY11:** Durability Testing completed on 46M DSB
- **3QFY11:** Fielding to 189th MRBC

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Dry Support Bridge (DSB)

FOREIGN MILITARY SALES

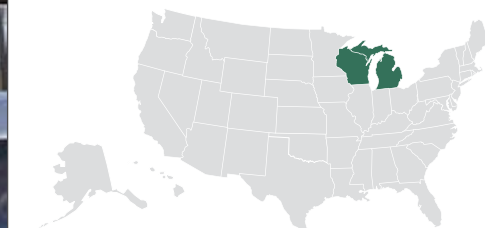
None

CONTRACTORS

Manufacturer:
Williams Fairey Engineering, Ltd.
(Stockport, United Kingdom)

PLS Chassis:
Oshkosh Corp. (Oshkosh, WI)

Logistics:
XMCO (Warren, MI)



Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Fields fully integrated and tested Capability Packages composed of vehicles, network elements, equipment, and supporting infrastructure to modernize BCTs to achieve unprecedented Joint combat capability in conjunction with the Army Force Generation (ARFORGEN) process.

Increment 1 Early Infantry Brigade Combat Team (E-IBCT) Capabilities

Capability Packages are a key element of the Army's BCT Modernization strategy and they provide the Army a regular process to strengthen our units with the latest materiel and nonmateriel solutions to meet the evolving challenges of the operating environment. This allows the Army to get the capabilities in highest demand to the Soldiers that need them, when they need them most. Accelerating

proven solutions, these packages will upgrade our units every few years. These bundles of capabilities include doctrine, organization and training in conjunction with materiel to fill the highest priority shortfalls and mitigate risk for Soldiers. The incremental deliveries will build upon one another as the Army continually adapts and modernizes.

Increment 1 forms the backbone of the first Capability Package, which also contains Advanced Precision Mortar, Nett Warrior (NW) and Human Terrain Teams. The current modernization strategy will deliver Increment 1 capability to nine IBCTs starting in 2011. Remaining BCTs will receive incremental releases of upgraded capabilities. ARFORGEN will determine if and when Increment 1 BCTs will be upgraded to a post-Increment 1 configuration based upon warfighting requirements.

Increment 1 provides enhanced warfighter capabilities in two primary areas. First, it provides enhanced situation awareness, force protection,

and lethality through the use of unattended and attended sensors and munitions. Second, it provides a communications network backbone for Battalion Command Networks.

The E-IBCT package will consist of the following systems: Urban and Tactical Unattended Ground Sensors (U/T UGS), Class 1 (Block 0) Unmanned Aerial Vehicle (UAV), and Small Unmanned Ground Vehicle (SUGV) Block 1. The E-IBCT systems will be fully integrated and networked through a Network Integration Kit (NIK) enabling data sharing and the command and control (C2) of systems. All systems are currently under evaluation and testing by the Soldiers of the Army Evaluation Task Force.

The Increment 1 Tactical Network

The Army will continue development and fielding of an incremental ground tactical network capability. This network is a layered system of interconnected computers and software, radios and sensors within the BCT. The network is essential to enable Unified Battle Command and

will be delivered to the Army's IBCTs in increasing capability increments. The first increment is currently finishing software development and demonstration (SDD) and operational testing and will be delivered to IBCTs in the form of NIKs.

The Network Integration Kit (NIK)



The NIK is an integrated suite of equipment, currently integrated on Mine Resistant Ambush Protected (MRAP) Vehicle and HMMWV platforms, that provides the network connectivity and battle command software to integrate and fuse sensor data into the common operational picture (COP) displayed on the Force XXI Battle Command Brigade and Below (FBCB2). The NIK consists of an

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

integrated computer system (ICS) that hosts the Battle Command software and the Systems of Systems Common Operating Environment (SOSCOE) software, along with a Joint Tactical Radio System Ground Mobile Radios (JTRS GMR) to provide the interface to the sensors and unmanned systems, as well as voice and data communications with other vehicles and Soldiers.

Soldiers will be able to communicate with the battalion Tactical Operation Center (TOC), by sending reports on enemy sighting, activity and location utilizing the NIK via the network, allowing for near real-time tactical decisions.

Common Controller (CC)

The Common Controller (CC) serves as a single common networked controller that connects Soldiers with many different IBCT unmanned systems, including the Class 1 Unmanned Aircraft System (UAS), the Armed Robotic Vehicle–Assault–Light (ARV-A-L), the Small Unmanned Ground Vehicle (SUGV) and Urban Unattended Ground Sensors (U-UGS). The CC reduces the logistics footprint on the battlefield and empowers the Soldier with enhanced Intelligence, Surveillance and Reconnaissance (ISR) capability.

The Common Controller will communicate via the network in Spiral 2/3/4, simplifying training, and will perform selected training, logistics/maintenance, medical and other Soldier functions.



XM156 Class I Block 0 Unmanned Aerial Vehicle (UAV)

The XM156 Class I Block 0 UAV is a platoon level asset that provides the dismounted Soldier with Reconnaissance, Surveillance, and Target Acquisition (RSTA) and laser designation. Total system weight, which includes the air vehicle, a control device, and ground support equipment

is less than 51 pounds and is back-packable in two custom Modular Lightweight Load-Carrying Equipment (MOLLE)-type carriers.

The Class I UAV provides imagery data in order to recognize personnel and provide targeting information to the BCT Modernization network during day and night operations and in adverse weather conditions from as high as 1,000 feet above ground level. The Army has incorporated an expedited Class I into IBCT Increment 1 to provide additional ISR capability to the Soldier starting in 2011. The Class I UAV Increment 1 capability will consist of a 25-pound vehicle with a commercial-off-the-shelf (COTS) electro-optical (EO) sensor and a COTS infrared (IR) sensor and a gasoline-based propulsion system.

The air vehicle operates in open, rolling, complex, and urban terrains with a vertical take-off and landing capability. It is interoperable with select ground and air platforms and controlled by mounted or dismounted Soldiers. The Class I uses autonomous flight and navigation, but it will interact with the network and the Soldier to dynamically update routes and target information. It provides dedicated reconnaissance support and

early warning to the lowest echelons of the BCT in environments not suited to larger assets.



The Class I system provides a hover and stare capability that is not currently available in the Army UAV inventory for urban and route surveillance. The Class I system also fills known gaps that exist in force operations, such as: Protect Force in Counterinsurgency (COIN) Operations, Soldier Protection in COIN environment, Ability to Conduct Joint Urban Operations, Enhanced ISR/RSTA Capabilities, hover and stare operations.

XM1216 Small Unmanned Ground Vehicle (SUGV)

The XM1216 SUGV is a lightweight, Soldier portable UGV capable of conducting Military Operations in Urban Terrain (MOUT), tunnels, sewers, and caves. The SUGV provides an unmanned capability for those missions that are manpower

intensive or high-risk such as urban ISR missions and Chemical/Toxic Materials reconnaissance missions without exposing Soldiers directly to the hazards.

The SUGV's modular design allows multiple payloads to be integrated in a plug-and-play fashion that will minimize the Soldier's exposure to hazards. Payloads to be fielded are the manipulator arm, tether capability, chemical/radiation detection and a laser target designator. Weighing 32 pounds, the SUGV is capable of carrying up to four pounds of payload.



The SUGV Increment 1 capability will feature an enhanced SUGV chassis with an integrated COTS sensor head and radio.

AN/GSR-9/10 Tactical/Urban Unattended Ground Sensors (T/U-UGS)

The UGS program is divided into two major subgroups of sensing systems: AN/GSR-9 (V) 1 Tactical-UGS (T-UGS), which includes ISR-UGS and Radiological and Nuclear UGS; and AN/GSR-10 (V) 1 Urban-UGS (U-UGS), also known as Urban (MOUT) Advanced Sensor System (UMASS).

The UGS are used to perform mission tasks such as perimeter defense, surveillance, target acquisition and situational awareness, including radiological, nuclear, and early warning. An UGS field will include multi-mode sensors for target detection, location and classification, and an imaging capability for target identification. The sensor field also includes a gateway node to provide sensor fusion and a long-haul interoperable communications capability for transmitting target or situational awareness information to a remote operator, or the common operating picture through the JTRS Network.

The U-UGS provide network-enabled reporting system for situational awareness and force protection in an urban setting. U-UGS also enable residual protection for cleared areas of MOUT environments. They are hand-

employed by Soldiers or robotic vehicles either inside or outside buildings and structures.



U-UGS support BCT operations by monitoring urban choke points such as corridors and stairwells as well as sewers, culverts, and tunnels. U-UGS gateways provide the urban situational awareness data interfaced to JTRS networks. Soldiers involved in the recent testing of the UGS provided invaluable feedback, which was incorporated into new versions (form factors) that are now in testing.

SYSTEM INTERDEPENDENCIES

JTRS GMR; JTRS Handheld, Manpack, Small Form Fit (JTRS HMS); NW, FBCB2; Warfighter Information Network-Tactical (WIN-T) Increment 2; WIN-T Increment 1

PROGRAM STATUS

- **FY09:** Integration work has addressed 100 percent of reliability fixes as a result of 2009 limited user test (LUT). Additional capability enhancements to the network, radio systems and hardware have also been made.
- **FY10–11:** Increment 1/JTRS development and integration work continues to support 2010 and 2011 evaluation activities.
- **4QFY10–1QFY11:** The Army is in year three of a four year test/evaluation process for Increment 1. Increment 1 has successfully passed Critical Design Review, Preliminary Design Review, and the technologies have been certified as mature enough for low-rate initial production (LRIP). The final Increment 1 LUT is scheduled to take place in September 2010 leading into a Defense Acquisition Board Review to authorize additional LRIP in December 2010.

PROJECTED ACTIVITIES

- **FY11:** Fielding to 3rd Infantry Brigade Combat Team, 1st Armored Division in 2011; 3-1 AD will conduct initial operational test and evaluation in late FY11.



Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

FOREIGN MILITARY SALES

None

CONTRACTORS

Boeing (Chicago, IL)
Science Applications International Corp.
(SAIC) (McLean, VA)

Network Integration Kit:

Boeing (Huntington Beach, CA)
General Dynamics C4 Systems, Inc.
(Bloomington, MN)

Overwatch Systems (Austin, TX)

BAE Systems C4 (Wayne, NJ)

IBM (Bethesda, MD)

Raytheon Company (Ft. Wayne, IN)

XM156 Class I Unmanned Aerial Vehicle:

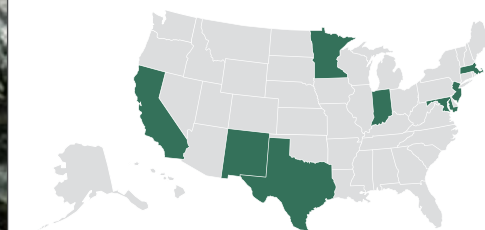
Honeywell (Albuquerque, NM)

AN/GSR 9 & AN/GSR 10 Unattended Ground Sensors:

Textron Defense Systems
(Wilmington, MA)

XM1216 Small Unmanned Ground Vehicle:

iRobot (Burlington, MA)



Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides global, real-time, multi-intelligence precision targeting information to Joint land, maritime, and air combat commanders across the full spectrum of military operations.

DESCRIPTION

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's future force airborne intelligence collection, processing, and targeting support system. This manned multi-INT Airborne Intelligence Surveillance and Reconnaissance (AISR) system provides a persistent capability to detect, locate, classify/identify, and track surface targets in day/night, in near-all-weather conditions, with a high degree of timeliness and accuracy.

EMARSS aircraft will be located within Aerial Exploitation Battalions (AEB), which are assigned to the U.S. Army Intelligence and Security Command (INSCOM). The EMARSS system will consist of commercial derivative aircraft equipped with electro-optic/infrared (EO/IR) full-

motion video (FMV) sensor, a COMINT collection system, an aerial precision geolocation system, line-of-site (LOS) tactical and beyond-line-of-site (LOS/BLOS) communications suites, two operator workstations, and self-protection suite integrated onto a Beechcraft King Air 350ER platform.

EMARSS will operate as a single platform in support of tactical missions. Mission altitude and flight tracks are chosen to optimize sensor data collection on the target area of interest while avoiding known threats. Flight tracks may be selected to strike a balance among the capabilities of multiple sensors, or to optimize collection from individual sensors based upon the daily collection tasking dictated by the tactical commander's priority intelligence requirements (PIRs). EMARSS will provide efficient response to Combat Forces' ISR tasking with centralized processing, exploitation, and dissemination (PED) of ISR while simultaneously transmitting critical FMV and intelligence products to engaged tactical forces.

SYSTEM INTERDEPENDENCIES

Distributed Common Ground System-Army (DCGS-A)

PROGRAM STATUS

- **1QFY10:** Directed requirement approved by the Headquarters Department of the Army G-3/5/7
- **3QFY10:** Release of the engineering and manufacturing development (EMD) request for proposal
- **4QFY10:** EMD contract award

PROJECTED ACTIVITIES

- **2-3QFY11:** Joint Requirements Oversight Council consideration of the CPD
- **FY11:** EMD phase

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Engineering Support:

CACI (Tinton Falls, NJ)

Booz Allen Hamilton (Eatontown, NJ)

Engineering/Program Management:

MITRE (Eatontown, NJ)

Aircraft Engineering:

CAS, Inc. (Huntsville, AL)

Science Applications International Corp.
(SAIC) (Huntsville, AL)

Information Assurance:

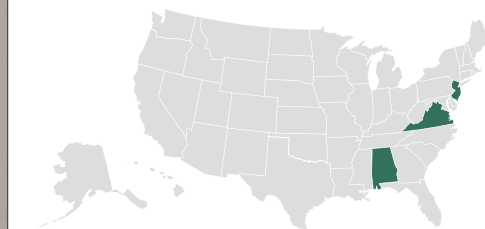
Sensor Technologies (Red Bank, NJ)

Program Support:

CACI (Arlington, VA)

Software Engineering Support:

Lockheed Martin (Tinton Falls, NJ)



Excalibur (XM982)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides improved fire support to the maneuver force commander through a precision-guided, extended-range, artillery projectile that increases lethality and reduces collateral damage.

DESCRIPTION

Excalibur (XM982) is a 155mm, Global Positioning System (GPS)-guided, extended-range artillery projectile, in use as the Army's next-generation cannon artillery precision munition. The target, platform location, and GPS-specific data are entered into the projectile's mission computer through an enhanced, portable, auto-inductive artillery fuze setter (EPIAFS).

Excalibur uses a jam-resistant internal GPS receiver to update the inertial navigation system, providing precision in-flight guidance and dramatically improving accuracy regardless of range. Excalibur has three fuze options: height-of-burst, point-detonating, and delay/penetration; and is employable in all weather conditions and terrain.

The program is using an incremental approach to provide a combat capability to the Soldier as quickly as possible, and to deliver advanced capabilities and lower costs as technology matures. The initial variant (Increment Ia-1) includes a unitary high-explosive warhead capable of penetrating urban structures and is also effective against personnel and light materiel targets. Increment Ia-2 will provide increased range (up to 40 kilometers) and reliability improvements. The third variant (Increment Ib) will maintain performance and capabilities while significantly reducing unit cost and increasing reliability.

Excalibur is designed for fielding to the Lightweight 155mm Howitzer (LW155), the 155mm M109A6 self-propelled howitzer (Paladin), and the Swedish Archer howitzer. Excalibur is an international cooperative program with Sweden, which contributes resources toward the development in accordance with an established project agreement and plans to join in procurement.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), LW155, Paladin/Field Artillery Ammunition Support Vehicle (FAASV)

Other Major Interdependencies

EPIAFS, Modular Artillery Charge System

PROGRAM STATUS

- **Current:** Increment Ia-1 fielded to Iraq and Afghanistan; Army and Marine Corps units in Afghanistan and Iraq are Excalibur capable
- **FY10:** Completed initial operational test and evaluation for Increment Ia-2
- **FY10:** Conducted competitive shoot-off to downselect between Increment Ib competitors to one contractor team for Phase 2

PROJECTED ACTIVITIES

- **FY11:** Full-rate production of Increment Ia-2
- **FY12:** Milestone C decision for Ib
- **FY13:** Operational assessment for Increment Ib
- **FY14:** Full materiel release for Increment Ib

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Excalibur (XM982)

FOREIGN MILITARY SALES

Australia, Canada, Sweden, United Kingdom

CONTRACTORS

Excalibur Increment Ia:

Raytheon (Systems Integration)
(Tucson, AZ)

Atlantic Inertial Units (Plymouth, England)

BAE Systems Bofors Defense (teamed
with Raytheon) (Karlskoga, Sweden)

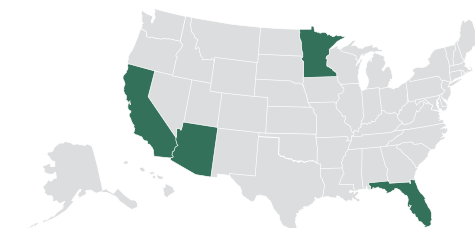
General Dynamics Ordnance and Tactical
Systems (Healdsburg, CA; Niceville, FL)

Increment Ib Phase 1 (Design

Maturation):

Alliant Techsystems (Minneapolis, MN)

Raytheon (Tucson, AZ)



Family of Medium Tactical Vehicles (FMTV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides unit mobility/resupply, equipment/personnel transportation, and key ammunition distribution, using a family of vehicles based on a common chassis.

DESCRIPTION

The Family of Medium Tactical Vehicles (FMTV) is a system of strategically deployable vehicles that performs general resupply, ammunition resupply, maintenance and recovery, engineer support missions, and 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 has 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 cube and payload capacity as their prime movers, provide air drop capability. MTV also serves as the platform for the High Mobility Artillery Rocket System (HIMARS) and resupply vehicle for PATRIOT and HIMARS. MTV operates worldwide in all weather and terrain conditions.

FMTV enhances crew survivability through the use of hard cabs, three-point seat belts, automatic braking system, and central tire inflation capability. FMTV enhances tactical mobility and is strategically deployable in C5, C17, and C130 aircraft. It reduces the Army's logistical footprint by providing commonality of parts and components, reduced maintenance downtime, high reliability, and high operational readiness rate (more than 90 percent). FMTV incorporates a

vehicle data bus and class V interactive electronic technical manual, significantly lowering operating and support costs compared with older trucks. Units are equipped with FMTVs at more than 68 locations worldwide; 45,429 trucks and 10,396 trailers are in field units as of June 2010. The Army developed, tested, and installed add-on-armor and enhanced add-on-armor kits, and a Low Signature Armored Cab (LSAC) for Southwest Asia. The newest armored version, the Long-term Armor Strategy (LTAS) A-Cabs are integral to new production and are being fielded. The LTAS B-kit is available. Approximately 6,000 FMTVs have been armored in Southwest Asia in support of Operation Iraqi Freedom and Operation Enduring Freedom.

SYSTEM INTERDEPENDENCIES

In this Publication

Chemical Biological Protective Shelter (CBPS), HIMARS, Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

Other Major Interdependencies

AGSE, CBDP-CP, EQ-36, HMMWV Replacement Interchange, LMS-788 Ops Shelter and Sensor Pallet, Other Interchange, P/M CAP, USAF AN/TPS-75 Radar

PROGRAM STATUS

- **4QFY10:** Government testing of new Oshkosh FMTV

PROJECTED ACTIVITIES

- **Ongoing:** Continue full production and fielding to support Army transformation
- **1QFY11:** Complete government testing to include live fire testing
- **1QFY11:** Oshkosh FMTV deliveries begin
- **3QFY11:** Last deliveries of FMTVs

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Family of Medium Tactical Vehicles (FMTV)

FOREIGN MILITARY SALES

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

CONTRACTORS

Prime:

Oshkosh Corp. (Oshkosh, WI)

Axles:

Meritor (Troy, MI)

Transmission:

Allison Transmission (Indianapolis, IN)

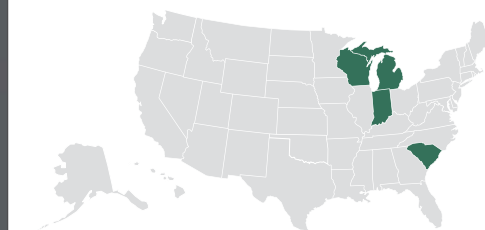
Engine:

Caterpillar (Greenville, SC)



FMTV with Armor Kit

	LMTV A1 Cargo	MTV A1 Cargo
Payload:	5,000 pounds	10,000 pounds
Towed load:	12,000 pounds	21,000 pounds
Engine:	Caterpillar 6-cylinder diesel	Caterpillar 6-cylinder diesel
Transmission:	Allison Transmission Automatic	Allison Transmission Automatic
Horsepower:	275	330
Drive:	4 x 4	6 x 6



Fixed Wing

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Performs operational support and focused logistics missions for the Army, Joint services, national agencies, and multinational users in support of intelligence and electronic warfare, transporting key personnel, and providing logistical support for battle missions and homeland security.

DESCRIPTION

Army Fixed Wing aviation units support their customers by enhancing the lethality and survivability on the battlefield with intelligence and electronic warfare assets. The Fixed Wing fleet provides timely movement of key personnel to critical locations throughout the theater of operations, transports time-sensitive and mission-critical supply items and repair parts needed to continue the warfight, and worldwide peacetime contingencies and humanitarian relief (Homeland Defense) support.

The Fixed Wing fleet consists of eight aircraft platforms and 256 aircraft that allow the Army to perform day-to-day operations in a more timely and cost-efficient manner without reliance on

commercial transportation. Special electronic-mission aircraft provide commanders with critical intelligence and targeting information, enhancing lethality and survivability on the battlefield.

All Army fixed-wing aircraft are commercial off-the-shelf products or are developed from those products. The fleet includes:

- C-12 Utility
- C-20/C-37 Long range transport
- C-23 Cargo
- C-26 Utility
- EO-5 Airborne Reconnaissance Low (ARL)
- RC-12 Guardrail Common Sensor (GR/CS)
- UC-35 Utility

The EO-5 and RC-12 are classified as special electronic mission aircraft and provide real-time intelligence collection in peace and wartime environments. The C-12, C-23, C-26, and UC-35 are classified as operational support aircraft and provide direct fixed-wing support to warfighting combatant commanders worldwide. The C-20 and C-37 are assigned to Andrews Air Force Base

and are classified as senior support aircraft for the chief of staff and service secretary.

SYSTEM INTERDEPENDENCIES

Airborne Reconnaissance Low (ARL)

PROGRAM STATUS

- C-12, RC-12, and UC-35 aircraft are sustained using a Life Cycle Contractor Support (LCCS) maintenance contract
- C-23 aircraft are sustained using an LCCS maintenance contract (M7 Aerospace)
- C-37 and UC-35 aircraft were purchased with Congressional plus-up funding
- C-37, C-20, and C-26 aircraft are sustained using Air Force LCCS maintenance contracts (Gulfstream and M7 Aerospace)
- EO-5 aircraft are sustained using an LCCS maintenance contract (King Aerospace)

PROJECTED ACTIVITIES

- Acquire six C-12 replacement aircraft for the Army Reserve
- Delivery of Golden Knights replacement aircraft

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



C-20/37



C-26



RC-12



EO-5 (ARL)



C-12



C23

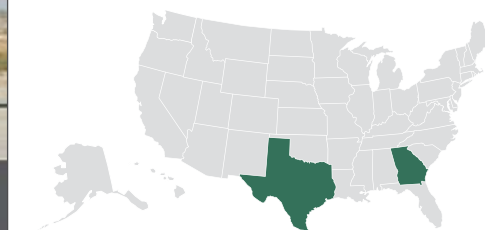
Fixed Wing

FOREIGN MILITARY SALES

None

CONTRACTORS

Gulfstream (Savannah, GA)
King Aerospace (Addison, TX)
M7 Aerospace (San Antonio, TX)



Force Protection Systems

INVESTMENT COMPONENT

- Modernization
- Recapitalization
- Maintenance



MISSION

Detects, assesses, and responds to unauthorized entry or attempted intrusion into installations or facilities.

DESCRIPTION

Force Protection Systems consist of the following components:

Automated Installation Entry (AIE) is a software and hardware system designed to read and compare vehicles and personnel identification media. The results of the comparison are used to permit or deny access to installation in accordance with installation commanders' criteria. AIE will use a database of personnel and vehicles that have been authorized entry onto an Army installation and appropriate entry lane hardware to permit/deny access to the installation. The system will validate the authenticity of credentials presented by a person with data available from defense personnel and vehicle registration databases. AIE will have the capability to process permanent personnel and enrolled visitors, and to present a denial barrier to restrict unauthorized personnel. The system will also be capable of

adapting to immediate changes in threat conditions and apply restrictive entrance criteria consistent with the force protection condition.

The **Battlefield Anti-Intrusion System (BAIS)** is a compact, modular, sensor-based warning system that can be used as a tactical stand-alone system. The system consists of a handheld monitor and three seismic/acoustic sensors and provides coverage across a platoon's defensive front (450 meters). It delivers early warning and situational awareness information, classifying detections as personnel, vehicle, wheeled, or tracked intrusions.

The **Lighting Kit, Motion Detector (LKMD)** is a simple, compact, modular, sensor-based early-warning system providing programmable responses of illumination and sound. The LKMD enhances unit awareness during all types of operations and environments, including those in urban terrain.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- 4QFY10: BAIS contract award
- 4QFY10: LKMD procurement and fielding

PROJECTED ACTIVITIES

- FY02-13: BAIS procurement and fielding
- FY06-11: LKMD operational testing and procurement

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Force Protection Systems

FOREIGN MILITARY SALES

None

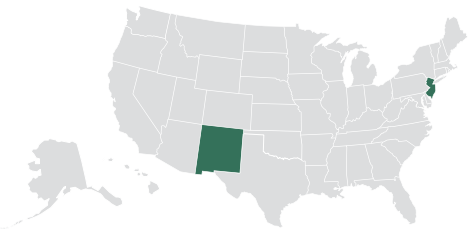
CONTRACTORS

BAIS:

L-3 Communications (Camden, NJ)

LKMD:

EG&G (Albuquerque, NM)



Force Provider (FP)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the Army, Joint U.S. military, host nation, and coalition forces personnel with a high-quality deployable base camp to support the expeditionary missions; develops, integrates, acquires, fields, sustains, and modernizes base camp support systems to improve the warfighter's fighting capabilities, performance, and quality of life.

DESCRIPTION

Each Force Provider (FP) is a high-quality deployable base camp that provides billeting, laundry, shower, latrine, food service, shower water reuse, and morale, welfare, and recreation (MWR) kits to support 600 soldier camps. Additionally, FP can be configured to support 150 base camps. FP includes 75 deployable triple container (TRICON) systems, with eight latrine systems, eight shower systems, four kitchen systems, containerized batch laundry systems, four TRICON refrigerated containers, 26 60-kilowatt tactical quiet generators, 26 modular personnel tents (air supported), four 400,000

BTU water heaters, four improved fuel distribution systems, two wastewater evacuation tank/trailers, 26 mobile electric power distribution replacement systems, 56 environmental control units, and eight air compressors that are diesel-engine driven and operate at 17 cubic feet per minute. FP is prepositioned in Army Prepositioned Stocks (APS) 1, 3, and 4 to support combatant commanders' requirements. All system components weigh less than 10,000 pounds, making FP highly mobile when prepacked for rapid transport via air (C-130, C-141, C-5, C-17), sea, road, or rail.

Additional operational add-on kits include a cold-weather kit that allows operation to -15 degrees Fahrenheit, prime-power kit, large-scale electric kitchen, and resource efficiency add-ons to include a shower water reuse system. New modules use an Airbeam Shelter technology which reduces set up time from days to hours.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

60-kilowatt Tactical Quiet Generator

PROGRAM STATUS

- **2QFY10:** Production initiated for 17 modules to replace deployed APS assets
- **3QFY10:** Deployment of two FP 600-man base camps configured in 150-man subsets to support an operational needs statement (ONS)
- **3QFY10:** Integration of the Shower Water Reuse System (SWRS) into FP 600-man base camps through urgent materiel release to support ONS

PROJECTED ACTIVITIES

- **1QFY11:** Capabilities production document approval supporting improved capabilities
- **4QFY11:** Integration of additional resource efficiency upgrades into FP baseline
- **4QFY12:** Projected completion of delivery of FP production modules to APS

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Force Provider (FP)

FOREIGN MILITARY SALES

None

CONTRACTORS

Force Provider Assembly:

Global Defense Engineering (Easton, MD)
Letterkenny Army Depot (Chambersburg, PA)

Expeditionary TRICON Kitchen System and FP Electric Kitchen:

Tri-Tech USA Inc. (South Burlington, VT)

Airbeam TEMPER Tent:

Vertigo Inc. (Lake Elsinore, CA)

Environmental Control:

Hunter Mfg. (Solon, OH)

TRICON Container:

Charleston Marine Containers (Charleston, SC)

Waste Water Evacuation Tank/Trailer:

Marsh Industrial (Kalkaska, MI)

Cold Weather Kit Assembly:

Berg Companies, Inc. (Spokane, WA)

Mobile Electric Power Distribution

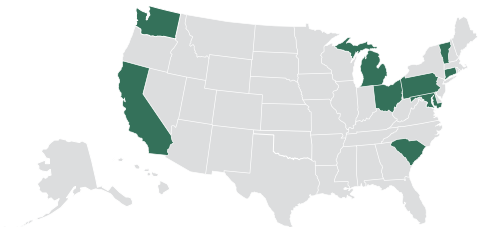
System Replacement:

Lex Products Corp. (Stamford, CT)

Expeditionary TRICON Systems

(shower, laundry, latrine):

To be determined



Force XXI Battle Command Brigade and Below (FBCB2)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides integrated, on-the-move, timely, relevant battle command information to tactical combat leaders and Soldiers from brigade to platform and across platforms within the brigade task force and other Joint forces.

DESCRIPTION

The Force XXI Battle Command Brigade and Below (FBCB2) forms the principal digital command and control system for the Army at brigade levels and below. It provides increased situational awareness (SA) on the battlefield by automatically disseminating throughout the network timely friendly force locations, reported enemy locations, and graphics to visualize the commander's intent and scheme of maneuver.

FBCB2 is a key component of the Army Battle Command System (ABCS). Appliance hardware and software are integrated into the various platforms at brigade-and-below, as well as at appropriate division and corps slices necessary to support brigade operations.

The system features platform interconnections through two communication systems: FBCB2–Enhanced Position Location Reporting System (EPLRS), supported by the tactical Internet; and FBCB2–Blue Force Tracking, supported by L-Band satellite. The Joint Capabilities Release (JCR) is the next software release and addresses Joint requirements, database simplification, Type 1 encryption, a product line software approach, and enables transition to the Blue Force Tracking II (BFT II) transceiver, allowing a tenfold increase in data throughput. FBCB2 is the primary platform-level digital Battle Command (BC) for the Army and Marine Corps at brigade-and-below, consisting of computer hardware and software integrated into tactical vehicles and

aircraft. The system distributes SA data and BC messages within/between platforms and command posts using the Lower Tactical Internet EPLRS or L-Band satellite as its means of communication.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Battle Command Sustainment Support System (BCS3), Distributed Common Ground System–Army (DCGS-A), Movement Tracking System (MTS), Nett Warrior (NW), Warfighter Information Network–Tactical (WIN-T) Increment 1, WIN-T Increment 2, WIN-T Increment 3

Other Major Interdependencies

AMDWS, ASAS, BFT-AVN, DTSS, CPOF, JTCW, JSTARS, MCS, JC2C

PROGRAM STATUS

- **Current:** In production

PROJECTED ACTIVITIES

- **Current:** Continue production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Force XXI Battle Command Brigade and Below (FBCB2)

FOREIGN MILITARY SALES

Australia

CONTRACTORS

Software, Encryption, and Installation Kits Prime:

Northrop Grumman (Carson, CA)

Field Service Representatives, Trainers, Installers:

Engineering Solutions and Products (ESP)
(Eatontown, NJ)

Hardware:

DRS Technologies (Palm Bay, FL)
ViaSat Inc. (Carlsbad, CA)

Program Management Support:

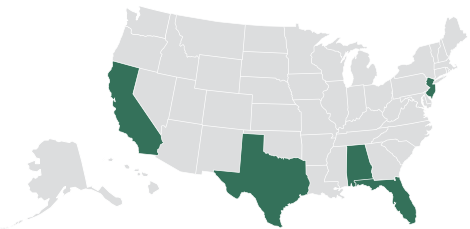
CACI (Eatontown, NJ)

Test Support:

MANTECH (Killeen, TX)

Aviation Hardware:

Prototype Integration Facility
(Huntsville, AL)



Forward Area Air Defense Command and Control (FAAD C2)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Collects, processes, and disseminates real-time target tracking and cuing information to all short-range air defense weapons and provides command and control (C2) for the Counter-Rocket, Mortar, and Artillery (C-RAM) program.

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 for multiple systems, including:

- Avenger
- Sentinel
- Army Battle Command System (ABCS)
- C-RAM Program

FAAD C2 supports air defense and C-RAM weapon systems engagement operations by tracking friendly and enemy aircraft, cruise missiles, unmanned aerial vehicles, mortar and

rocket rounds as identified by radar systems, and by performing C2 for Avenger and the C-RAM system.

FAAD C2 uses the following communication systems:

- Enhanced Position Location Reporting System (EPLRS)
- Multifunctional Information Distribution System (MIDS)
- Single Channel Ground and Airborne Radio System (SINCGARS)

FAAD C2 provides Joint C2 interoperability and horizontal integration with all Army C2 and air defense artillery system, including, but not limited to:

- Surface Launched Advanced Medium Range Air-to-Air Missile
- PATRIOT
- Avenger
- Theater High Altitude Area Defense (THAAD)
- Airborne Warning and Control System (AWACS)
- C-RAM
- ABCS

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Radar systems providing input data such as Sentinel, Firefinder, Lightweight Counter-Mortar Radar (LCMR), and AWACS

PROGRAM STATUS

- **3QFY10:** BIOPs approved for updated shelter systems
- **4QFY10:** FAAD C2 version 5.4B full materiel release
- **4QFY10:** Complete fielding of FAAD Sensor C2 nodes to five division headquarters

PROJECTED ACTIVITIES

- **1QFY11:** Complete FY10 reset effort of 37 FAAD C2 shelter systems
- **2QFY11:** Field final Maneuver Air and Missile Defense Battalion (1-188 Air Defense Artillery)
- **3QFY11:** Field FAAD C2 software version 5.5A with 3D display
- **4QFY11:** Continue fielding of Sensor C2 nodes to six additional division headquarters

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Forward Area Air Defense Command and Control (FAAD C2)

FOREIGN MILITARY SALES

Egypt

CONTRACTORS

Software:

Northrop Grumman Space and Mission Systems Corp. (Redondo Beach, CA)

Hardware:

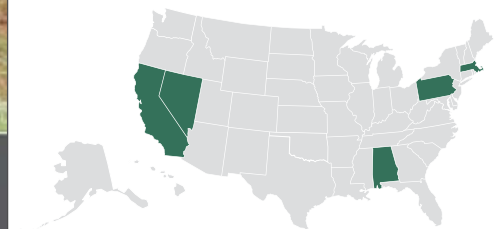
Tobyhanna Army Depot (Scranton, PA)
PKMM (Las Vegas, NV)

SETA:

ITT-CAS, Inc. (Huntsville, AL)

CHS 3:

General Dynamics (Taunton, MA)



Future Tank Main Gun Ammunition (FTMGA)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides overwhelming lethality overmatch to the heavy armor fleet.

DESCRIPTION

The Future Tank Main Gun Ammunition (FTMGA) suite consists of two cartridges and will provide enhanced lethality and increased capability to the Heavy Brigade Combat Team.

The next generation kinetic energy (KE) cartridge, designated M829E4, will use an advanced penetrator to defeat future heavy armor targets equipped with explosive reactive armor and active protection systems. This will increase survivability of the Abrams tank in the 0–4 kilometer range.

The Advanced Multi-Purpose (AMP) cartridge will combine the capabilities of a number of existing munitions into one cartridge. This cartridge will utilize air bursting warhead and multimode fuze technology to combine those capabilities and provide new capability against dismounted infantry at longer ranges. This cartridge will

employ high-explosive, anti-personnel, obstacle-reduction, and anti-helicopter capabilities into one munition, thus streamlining the logistical footprint associated with deploying heavy forces. This cartridge will further enhance survivability and lethality for Abrams tanks in the 0–4 kilometer range.

SYSTEM INTERDEPENDENCIES

The FTMGA suite must be compatible with the Abrams tank fleet through the remainder of its service life.

PROGRAM STATUS

- **4QFY09:** Milestone B for M829E4
- **FY10:** M829E4 Engineering and manufacturing development (EMD) initiation
- **FY10:** Award of two competing EMD contracts for M829E4
- **Current:** M829E4 TRL-6 demonstrated; AMP TRL-6 demonstrated

PROJECTED ACTIVITIES

- **FY11:** EMD downselect M829E4
- **FY12:** Milestone B for AMP

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Future Tank Main Gun Ammunition (FTMGA)

FOREIGN MILITARY SALES

None

CONTRACTORS

M829E4:

General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)

Alliant Techsystems (Plymouth, MN)

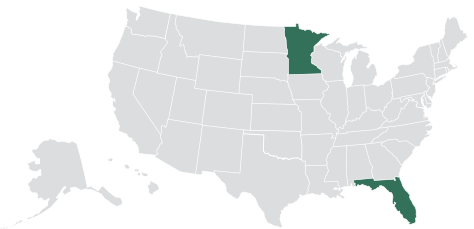
CONCEPT

AMP



DEVELOPMENT

M829E4



General Fund Enterprise Business Systems (GFEBs)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a new core financial management capability that is compliant with congressional mandates, administers the Army's General Fund, and improves performance, standardizes processes, and meets future needs.

DESCRIPTION

The Army will implement a commercial off-the-shelf Enterprise Resource Planning (ERP) system that meets the requirements of the Chief Financial Officers Act and the Federal Financial Management Improvement Act of 1996, and that is capable of supporting the Department of Defense with accurate, reliable, and timely financial information. The General Fund Enterprise Business Systems (GFEBs) implementation involves standardizing financial management, accounting functions, real property inventory, and management across the Army. As a result, Army financial and real property professionals will have access to timely, reliable, and accurate information. GFEBs will also improve cost management and control,

allow more time to perform financial analysis, and facilitate a more accurate understanding of the value, location, and characteristics of all property. GFEBs will provide a comprehensive system for many of the Army's financial and accounting functions including general ledger, accounts payable, revenue and accounts receivable, cost management, financial reporting, and real property inventory and management. GFEBs will deploy to an estimated 79,000 warfighters at more than 200 sites. Anticipated benefits to be realized are \$960 million between FY10 and Life Cycle FY22.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **2QFY08:** Successful Milestone B decision
- **3QFY08:** Developmental testing for release 1.2
- **3QFY08:** Begin build phase of second production release (release 1.3)
- **1QFY09:** "Go-Live" of first production release
- **1QFY09:** Limited user test

- **2QFY09:** "Go-Live" of release 1.3
- **2QFY09:** Milestone C and move to production and deployment/operations and support phase
- **3QFY09:** Full Army-wide deployment of release 1.3
- **3QFY09:** Successful Milestone C decision
- **1QFY10:** Successful release 1.4 "Go-Live"
- **1QFY10:** Limited user testing of release 1.4
- **2QFY10:** Successful release 1.4 "Go-Live" to Medical Command
- **2QFY10:** Limited pre-deployment authorization for Wave 2
- **3QFY10–4QFY10:** Follow-on operational test and evaluation

PROJECTED ACTIVITIES

- **Continue:** Full deployment decision approval
- **1QFY11:** Deploy release 1.4.2
- **3QFY11:** Release 1.4.3 and move to full Army-wide deployment/operations and support phase

ACQUISITION PHASE

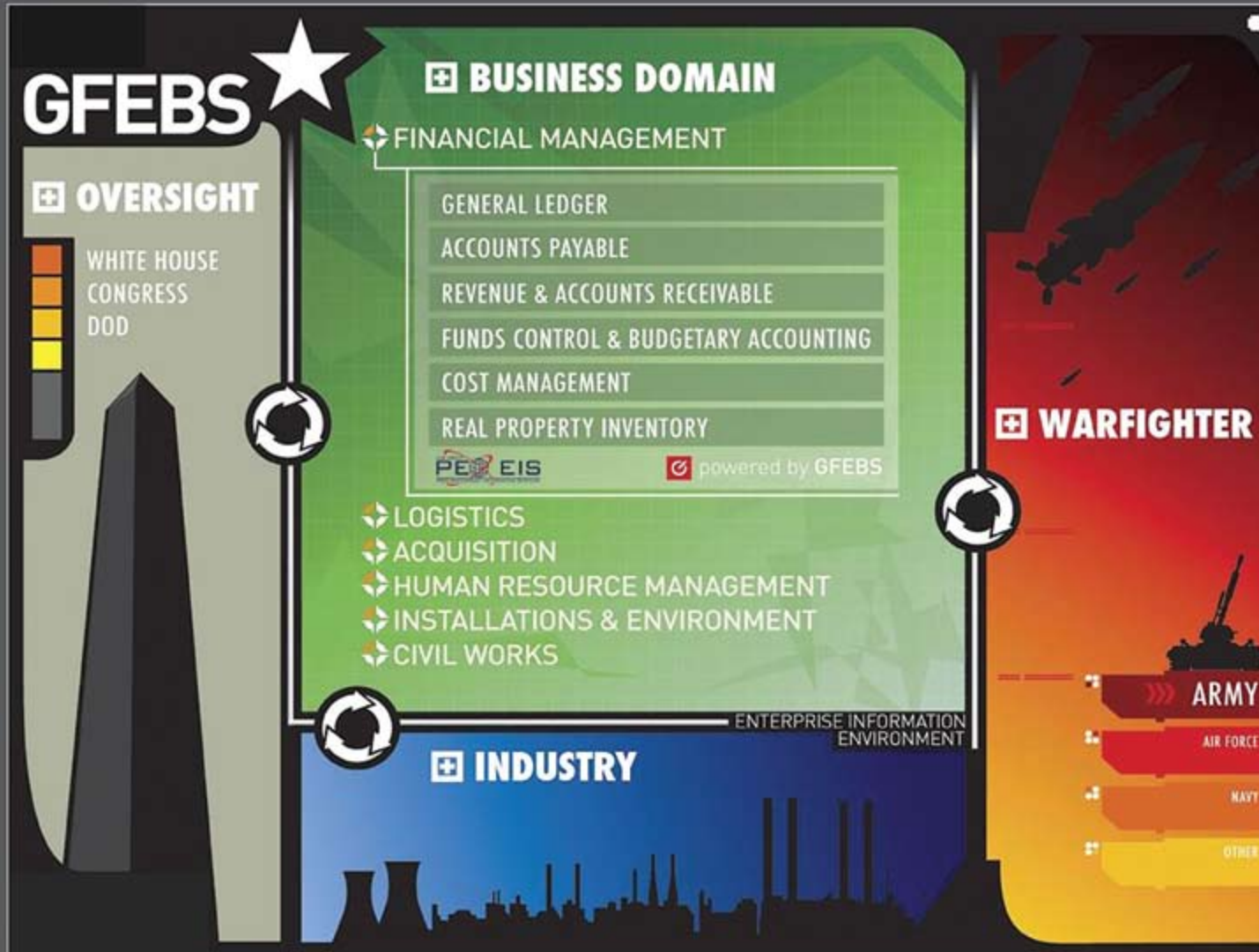
Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

General Fund Enterprise Business Systems (GFEBs)



FOREIGN MILITARY SALES

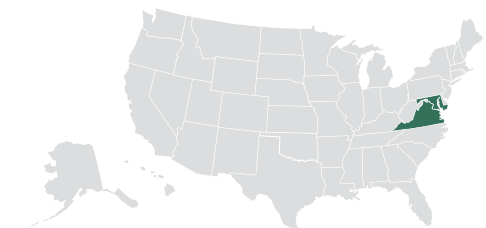
None

CONTRACTORS

System Integrator:
Accenture (Reston, VA)

Program Management Support–Acquisition:
Binary Group (Bethesda, MD)

Program Management Support Services–Engineering:
iLuMinA Solutions (California, MD)



Global Combat Support System–Army (GCSS-Army)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides commanders and staffs with a responsive and efficient automated system that provides one coherent source for accurate and timely tactical logistics information to improve situational awareness and facilitate the decision-making cycle.

DESCRIPTION

Global Combat Support System–Army (GCSS-Army) is one program with two components. GCSS-Army Enterprise Resource Planning (ERP) Solution is an automation information system that serves as the primary tactical logistics enabler to support Army and Joint Transformation for Sustainment using an ERP system. The program re-engineers current business processes to achieve end-to-end logistics and integration with applicable command and control (C2)/Joint systems. The second component, Army Enterprise Systems Integration Program (AESIP), formerly known as Product Lifecycle Management Plus (PLM+), 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 (COTS) ERP software products to support rapid force projection in the battlefield functional areas of arming, fixing, fueling, sustaining and tactical logistics financial processes. The GCSS-Army solution replaces 11 logistics Standard Army Management Information Systems (STAMIS) in tactical units and will establish an interface/integration with applicable C2 and Joint systems.

GCSS-Army (ERP Solution) is the primary enabler for the Army transformation vision of a technologically advanced ERP that manages the flow of logistics resources and information to satisfy 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. GCSS-Army will meet the warfighter's need for responsive

support at the right place and time and improve the commander's situational awareness with accurate and responsive information.

SYSTEM INTERDEPENDENCIES

General Fund Enterprise Business Systems (GFEBs)

PROGRAM STATUS

- **4QFY08:** Milestone B
- **1QFY09:** Acquisition program baseline signed
- **4QFY10:** Release 1.1 "Go-Live"
- **4QFY10:** Developmental test and evaluation; initial government test

PROJECTED ACTIVITIES

- **2QFY11:** Milestone C decision
- **4QFY11:** Initial operational test and evaluation
- **2QFY12:** Full deployment decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

GCSS-Army will field an Army automated information system as the primary tactical logistics enabler to support Army and Joint Transformation for Sustainment using an Enterprise Resource Planning (ERP) System



Global Combat Support System—Army (GCSS-Army)

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime GCSS-Army:

Northrop Grumman Information Systems (Richmond, VA)

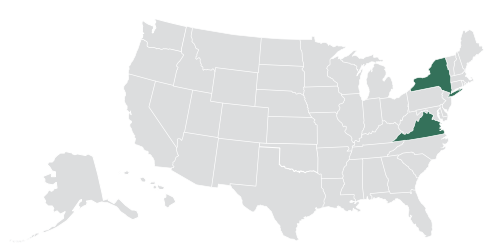
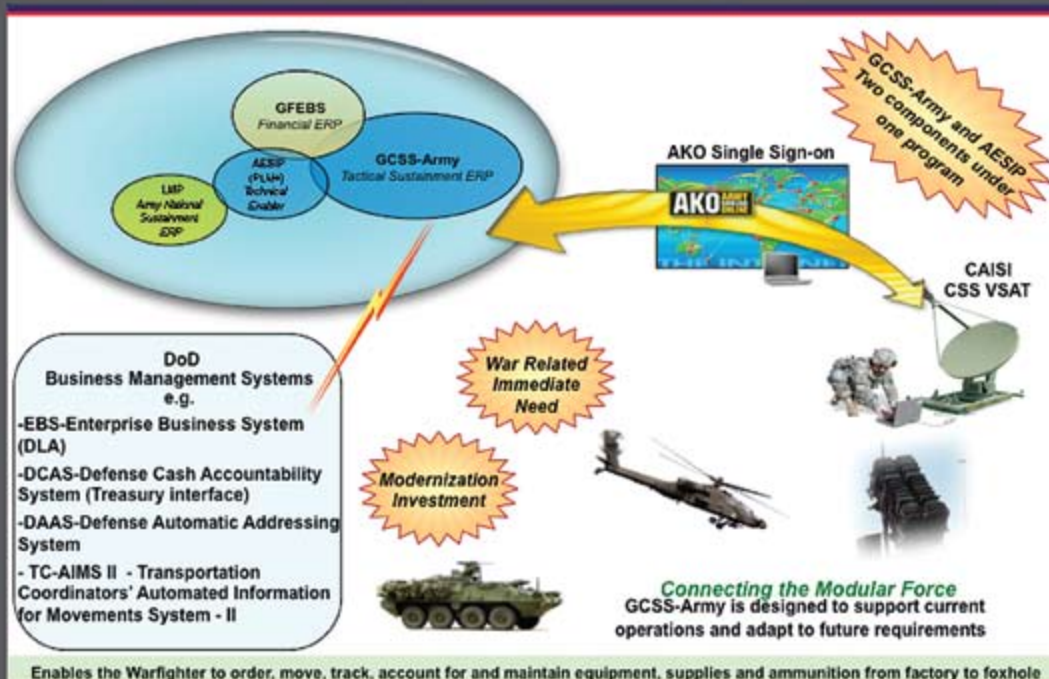
Prime AESIP:

Computer Sciences Corp. (CSC) (Falls Church, VA)

PMO Support:

LMI Consulting (McLean, VA)
MPRI, an L-3 Company (Alexandria, VA)
Capgemini (IV&V) (New York, NY)

System Architecture



Global Command and Control System–Army (GCCS-A)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides critical automated command and control (C2) tools for combatant commanders to enhance warfighter capabilities throughout the spectrum of conflict during Joint and combined operations.

DESCRIPTION

The Global Command and Control System–Army (GCCS-A) is the Army's strategic and operational C2 system, providing readiness, planning, mobilization, and deployment capability information for strategic commanders. For theater commanders, GCCS-A provides the following:

- Common operational picture and associated friendly and enemy status information

- Force-employment planning and execution tools (receipt of forces, intra-theater planning, readiness, force tracking, onward movement, and execution status)
- Overall interoperability with Joint, coalition, and the tactical Army Battle Command System (ABCS)

GCCS-A supports Army units from the strategic commanders and regional combatant commanders in theater, down through the joint task force commander. As part of ABCS, GCCS-A provides a seamless Army extension from the Joint GCCS system to echelons corps and below. Compatibility and interoperability are achieved by building the GCCS-A applications to function on the common operating environment and through interfaces with other C2 systems within the Army and other services. Force Readiness and Force Projection are provided by Defense Readiness Reporting System–Army (DRRS-A).

The common operating environment specifies a common system infrastructure for all C2 systems in accordance with the joint technical

architecture guidelines. These provide a common support architecture and modular software for use by the services and agencies in developing mission-specific solutions to their C2 requirements. The hardware platform is based on commercial off-the-shelf hardware. The system users are linked via local area networks in client/server configurations, operating at Secret/High over the Secure Internet Protocol Router Network for worldwide communication.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Battle Command Sustainment Support System (BCS3), Tactical Battle Command (TBC)/Maneuver Control System (MCS)

Other Major Interdependencies

ABCS, ASAS, CPOF, DRRS, DTSS, GCCS-J, GSORTS, JOPES

PROGRAM STATUS

- **3QFY08–1QFY09:** Support Net-Enabled Command Capability (NECC) development of Army capability modules with unique Army requirements
- **3QFY08–4QFY10:** Support Operations Enduring Freedom and Iraqi Freedom (OEF/OIF)
- **3QFY08–4QFY10:** Release Defense Readiness Reporting System–Army (DRRS-A) Force Readiness Tool (Phase 3) to the field
- **1–4QFY10:** Support to the Joint Command and Control (JC2) Capability Analysis of Alternatives (AoA)

PROJECTED ACTIVITIES

- **1–4QFY11:** Continue spiral development in support of GCCS-A Version 4.2.x and DRRS-A Phase 4 requirements
- **1–4QFY11:** Continue directed fieldings and required support for OEF/OIF
- **1–4QFY11:** Continue support to the JC2 AoA and eventual approved JC2 Way Forward

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Global Command & Control System - Army

Global Command and Control System—Army (GCCS-A)

FOREIGN MILITARY SALES

None

CONTRACTORS

Develop and Field Software:

Lockheed Martin (Springfield, VA;
Tinton Falls, NJ)

System Hardware:

GTSI (Chantilly, VA)

Systems Engineering and Support:

Accenture (Reston, VA)

Field Support Reps:

Engineering Solutions and Products (ESP)
(Eatontown, NJ)

Systems Engineering and Integration:

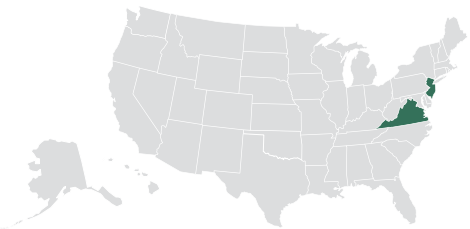
Systems Technologies (Systek), Inc.
(West Long Branch, NJ)

Program Support:

Booz Allen Hamilton (Eatontown, NJ)

Systems Integration and Testing:

General Dynamics (Fairfax, VA)



Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides combatant commanders a real-time responsive capability to conduct long-dwell, persistent stare, wide-area reconnaissance, surveillance, target acquisition, communications relay, and attack missions.

DESCRIPTION

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

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

Its specifications include the following:

Length: 28 feet

Wingspan: 56 feet

Gross take-off weight: 3,200 pounds (Growth to 3,600 pounds)

Maximum speed: 150 knots

Ceiling: 25,000 feet

Range: 1,200 nautical miles via satellite communications (SATCOM)

Endurance: 30+ hours

The Gray Eagle UAS is fielded in company sets, consisting of 12 unmanned aircraft, six One System Ground Control Stations (OGCS), six Ground Data Terminals (GDT), three Portable Ground Control Stations (PGCS), three Portable Ground Data Terminals (PGDT), three Satellite Ground Data Terminals (SGDT), an Automated Take-off and Landing System (ATLS), Light Medium Tactical Vehicles (LMTV), and other ground-support equipment, operated and maintained by a company of 128 Soldiers within the Combat Aviation Brigade.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

PM-Robotic Unmanned Sensors (PM-RUS) provides the electro-optical/infrared (EO/IR) and SAR/GMTI payloads, PM-Joint Attack Munition Systems (PM-JAMS) provides Hellfire missiles, PM-Warfighter Information Network-Terrestrial (PM-WIN-T) provides communications relay payload

PROGRAM STATUS

- **Current:** Low-rate initial production

PROJECTED ACTIVITIES

- **4QFY11:** Initial operational test and evaluation
- **2QFY12:** Full-rate production decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Aircraft:

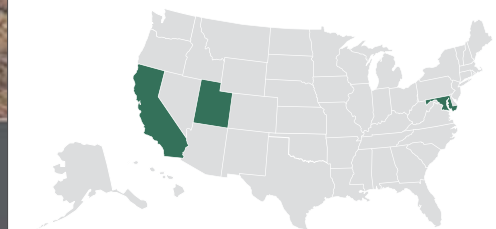
General Atomics, Aeronautical Systems
Inc. (San Diego, CA)

Ground Control Station:

AAI Corp. (Hunt Valley, MD)

Tactical Common Data Link:

L-3 Communications (Salt Lake City, UT)



Ground Combat Vehicle (GCV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the infantry squad with a highly mobile, protected transport to decisive locations on the battlefield.

DESCRIPTION

The Ground Combat Vehicle (GCV) is a critical element of the Army's effort to transform, replace, and improve its Combat Vehicle fleet. The GCV Infantry Fighting Vehicle (IFV) will provide force protection to deliver a nine-man infantry squad in an improvised explosive device (IED) threat environment. It will protect occupants from IEDs, mines, and other ballistic threats with scalable armor that provides mission flexibility for the commander.

GCV IFV will be designed with sufficient power and space to host the Army's advanced network. The IFV will feature an open architecture to facilitate the integration of current and future communications, computers, and surveillance and reconnaissance systems.

The GCV IFV will have enhanced mobility to allow it to operate effectively in a variety of complex environments, including urban and cross county terrain, while carrying a full infantry squad plus crew of three.

The GCV IFV's organic weapons will be capable of providing both destructive fires against armored vehicle threats and direct fire support for the squad during dismounted assaults. Flexible capabilities can shape the operating environment with effects that can vary from a "shove" to a lethal overmatch.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY10:** Completed materiel development decision; currently proceeding to a Milestone A decision for approval to enter into the technology development phase

PROJECTED ACTIVITIES

- **Ongoing:** The GCV IFV program will go through competitive development as well as technology development and engineering and manufacturing development phases before entering production; first production of GCV IFV is expected approximately seven years from award of technology development contracts

ACQUISITION PHASE

Technology Development

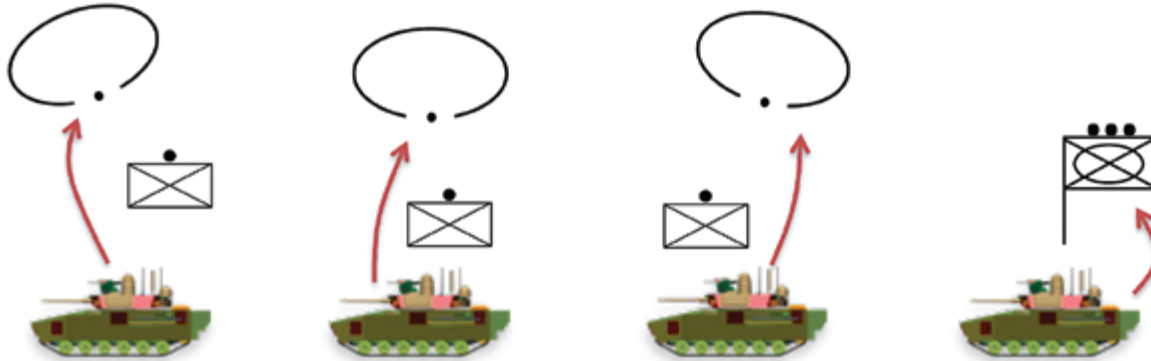
Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Concept of Operation: Squad Deployment

GCV Platoon



PL
 Medic, RTO, FO
 Interpreter, PRT, etc.

Ground Combat Vehicle (GCV)

FOREIGN MILITARY SALES

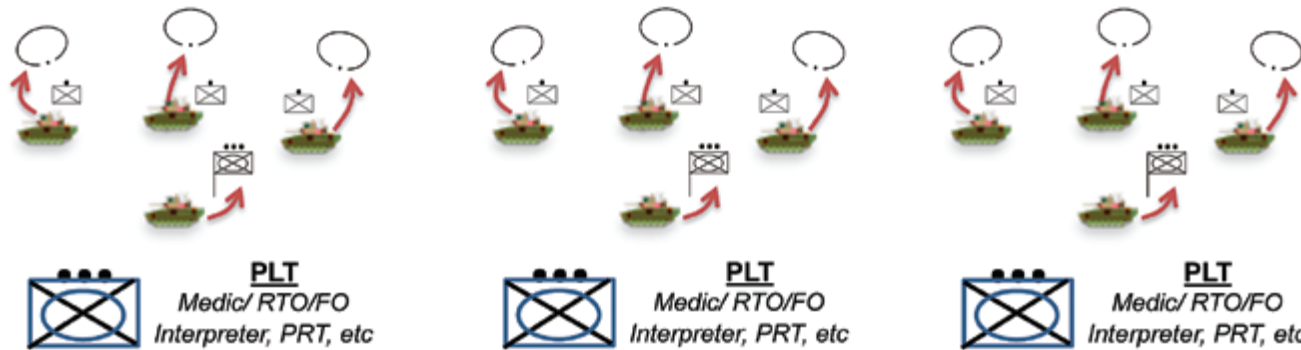
To be determined

CONTRACTORS

To be determined

Concept of Operation: Platoon Deployment

GCV Infantry Company


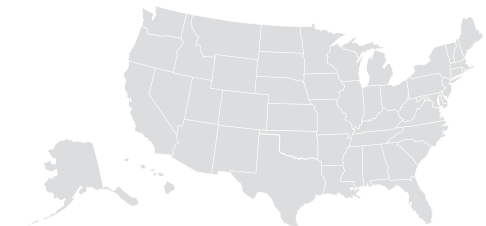


PLT
 Medic/ RTO/FO
 Interpreter, PRT, etc

PLT
 Medic/ RTO/FO
 Interpreter, PRT, etc

PLT
 Medic/ RTO/FO
 Interpreter, PRT, etc

Distributed Combat Power
Decentralized Operations

Guardrail Common Sensor (GR/CS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides signals intelligence (SIGINT) collection and precision targeting that intercepts, collects, and precisely locates hostile communications intelligence radio frequency emitters and electronic intelligence threat radar emitters.

DESCRIPTION

The Guardrail Common Sensor (GR/CS) is a fixed-wing, airborne, SIGINT collection and precision targeting location system. It provides near-real-time information to tactical commanders in the corps/Joint task force/Brigade Combat Team (BCT) area of operations with emphasis on Indications and Warnings (I&W). It collects low-, mid-, and high-band radio signals and electronic intelligence (ELINT) signals; identifies and classifies them; determines source location; and provides near-real-

time reporting, ensuring information dominance to commanders. GR/CS uses a Guardrail Ground Baseline (GGB) for the control, data processing, and message center for the system. It includes:

- Integrated communications intelligence (COMINT) and ELINT collection and reporting
- Enhanced signal classification and recognition and precision emitter geolocation
- Near-real-time direction finding
- Advanced integrated aircraft cockpit
- Tactical Satellite Remote Relay System (Systems 1, 2, 3, and 4)

A standard system has 8 to 12 RC-12 aircraft flying operational missions in sets of two or three. Up to three aircraft/systems simultaneously collect communications and noncommunications emitter transmissions and gather lines of bearing and time-difference-of-arrival data, which is transmitted to the GGB, correlated, and supplied to supported commands.

Planned improvements through Guardrail modernization efforts include an enhanced precision geolocation subsystem, the Communications High-Accuracy Location Subsystem–Compact (CHALS-C), with increased frequency coverage and a higher probability to collect targets; a modern COMINT infrastructure and core COMINT subsystem, providing a frequency extension, Enhanced Situational Awareness (ESA); a capability to process special high-priority signals through the high-end COMINT subsystem; and elimination of non-supportable hardware and software. Ground processing software and hardware are being upgraded for interoperability with the Distributed Common Ground System–Army (DCGS-A) architecture and Distributed Information Backbone.

SYSTEM INTERDEPENDENCIES

DCGS-A

PROGRAM STATUS

- **3QFY08:** Initial CHALS-C flight test
- **1QFY09:** ESA factory acceptance test
- **3QFY09:** High band COMINT (HBC) factory acceptance test
- **4QFY09:** CHALS-C, ESA, HBC, and ELINT system flight test
- **3QFY10:** CHALS-C, ESA, HBC, and ELINT upgrades system assessment
- **3QFY10:** CHALS-C, ESA, HBC, and ELINT fieldings; GGB fieldings to the 224th Military Intelligence (MI), 3rd MI, 15th MI; initiating new contracts for additional GGB hardware
- **4QFY10:** ESA system assessment

PROJECTED ACTIVITIES

- **2QFY11:** Begin system fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Guardrail Common Sensor (GR/CS)**FOREIGN MILITARY SALES**

None

CONTRACTORS**System Integrator, ESA Subsystem, and GGB Software/System Support:**

Northrop Grumman (Sacramento, CA)

Data Links:

L-3 Communications (Salt Lake City, UT)

CHALS-C:

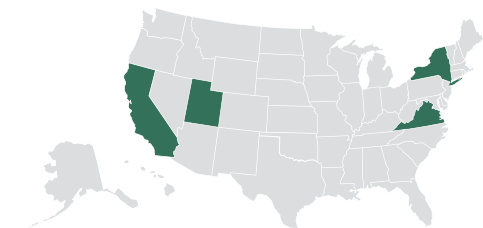
Lockheed Martin (Oswego, NY)

X-MIDAS Software:

ZETA (Fairfax, VA)

HBC Subsystem:

ArgonST Radix (Mountain View, CA)



Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a 24/7 persistent, responsive, all-weather, rapidly-deployed, long-range, surface-to-surface, area-and-point precision strike capability.

DESCRIPTION

The Guided Multiple Launch Rocket System (GMLRS) is a major upgrade to the M26 rocket, producing precise, destructive, and shaping fires against a variety of target sets. GMLRS is employed with the M270A1 upgraded Multiple Launch Rocket System (MLRS) tracked launcher and the M142 High Mobility Artillery Rocket System (HIMARS) wheeled launchers. GMLRS munitions have greater accuracy with a resulting higher probability of kill, smaller logistics footprint, and minimized collateral damage.

There are two fielded variants of the GMLRS: the previously produced dual-purpose improved conventional munitions (DPICM) variant designed to service area targets; and the unitary variant with a single 200-pound class high-explosive charge to provide precision strike blast and

fragmentation effects with low collateral damage. The development of a third variant incorporating an alternative warhead has been initiated. The Alternative Warhead (AW) will be compliant with the 2008 DoD Policy on Cluster Munitions and Unintended Harm to Civilians. The AW rocket will service area target sets without producing unexploded ordnance and is scheduled to be fielded in FY15.

The original GMLRS development was an international cooperative program with the United Kingdom, Germany, France, and Italy. An urgent materiel release version of the GMLRS Unitary was produced and fielded in support of U.S. Central Command (CENTCOM) forces with over 1,600 rockets used in operations through July 2010.

Rocket length: 3,937mm

Rocket diameter: 227mm

Rocket reliability: Threshold 92 percent; objective 95 percent

Ballistic range(s): 15 to 70+ kilometers

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), HIMARS

Other Major Interdependencies

GPS, M270A1, Joint Systems, National Systems

PROGRAM STATUS

- **2Q–3QFY08:** GMLRS Unitary initial operational test
- **1QFY09:** GMLRS AW Configuration Steering Board (CSB), Acquisition Decision Memorandum (ADM) approved for Technology Development Initiation of the AW
- **1QFY09:** GMLRS AW CSB ADM halts new DPICM procurements
- **1QFY09:** GMLRS Unitary full-rate production decision
- **4QFY09:** GMLRS AW Milestone A
- **4QFY10:** GMLRS AW Warhead Prototype Technical Demonstrations

PROJECTED ACTIVITIES

- **4QFY11:** GMLRS AW Milestone B

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

FOREIGN MILITARY SALES

Bahrain, Canada, France, Finland, Germany, Japan, Jordan, Singapore, Thailand, United Arab Emirates, United Kingdom

CONTRACTORS

Prime:

Lockheed Martin (Camden, AR;
Grand Prairie, TX)
Lockheed Martin Missiles and Fire Control
(Las Cruces, NM)

Guidance Set:

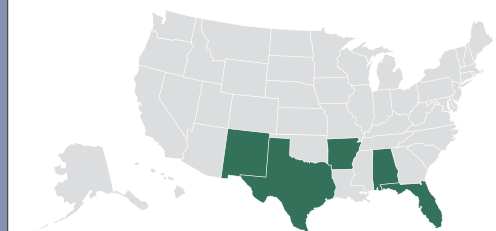
Honeywell (Clearwater, FL)

Rocket Motors:

Aerojet (Camden, AR)

Technical System Support:

Systems, Studies, and Simulation
(Huntsville, AL)



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

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports combat units by performing line and local haul, unit resupply, helicopter and tactical vehicle refueling, and related missions in a tactical environment.

DESCRIPTION

The Heavy Expanded Mobility Tactical Truck (HEMTT) 10-ton, 8-wheel drive is designed for cross-country military missions up to 11 tons to transport ammunition, petroleum, oils, and lubricants. Variants include: M977, M985, M978, M983, M984 and M1120.

The M977 is utilized for delivery of general supplies, equipment, and ammunition with an on-board crane with 4,500 pounds load capacity. The M985 cargo has an on-board crane with 5,400 pounds load capacity and is the primary transporter for Multiple Launch Rocket System (MLRS) ammunition.

The M978 tanker is a 2,500 gallon fuel transporter for field refueling of ground vehicles and aircraft. The M984 wrecker includes a crane and winch retrieval system and serves the primary role of recovery and evacuation of heavy wheel vehicles and combat systems. The M983 Tractor is the prime mover for the Patriot missile. The M983 Light Equipment Transporter (LET) Tractor serves as the prime mover for tactical semitrailers in engineering units to include the M870 series and Intermediate Stryker Recovery System (ISRS) and Mine-Resistant, Ambush-Protected (MRAP) vehicles. The HEMTT Load Handling System (LHS) provides NATO interoperability with standard flatrack and mission modules for delivery of general supplies, equipment, and ammunition with Palletized Load System (PLS) style load handling systems. The system is compatible with the PLS Trailer, capable of a 26,000 pound payload.

The HEMTT A4 began fielding in December 2008. Enhancements include a modern power train consisting of a Caterpillar C-15/500 horsepower Engine and Allison Transmission (4500 SP/5-

speed automatic), anti-lock braking system and traction control, air-ride suspension, a J-1939 data-bus providing an updated electrical system, climate control, and a larger common cab.

HEMTT ESP, known as HEMTT RECAP, is a recapitalization program that converts high-mileage, older version HEMTT trucks into the current A4 production configuration. Modernizing the fleet to one model reduces logistic footprint and operational and sustainment (O&S) cost of maintaining old vehicles.

HEMTT has several configurations:

- **M977:** Cargo truck with light materiel handling crane
- **M985:** Cargo truck with heavy materiel handling crane
- **M978:** 2,500-gallon fuel tanker
- **M984:** Wrecker
- **M983:** Tractor
- **M983 LET:** LET fifth wheel vertical loading has 45K winch with gross towing weight of 45.4 kilograms
- **M1120:** LHS transports palletized materiel and International Standards Organization (ISO) containers

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

The M983 HEMTT LET Tractor paired with the Fifth Wheel Towing Device and High Mobility Recovery Trailer are designated ISRS and MRAP recovery. Other vehicles that utilize the HEMTT chassis are: M1142 Tactical Fire Fighting Trucks, M1158 Heavy Mobility Water Tender Truck, M1977 HEMTT Common Bridge Transporter (CBT), Theatre High Altitude Area Defense Missile System (THAAD), and the M985 GMT Guided Missile Transport used in Patriot Battalions.

PROGRAM STATUS

- **1QFY09:** HEMTT A4 Family of Vehicles was type classified standard and full materiel released (TC/MR)

PROJECTED ACTIVITIES

- **FY11:** Distribute HEMTT A4s in accordance with Headquarters Department of the Army G8 distribution plan to next deployers to Theater, Army National Guard, Army Reserve, Homeland Defense, and Army Prepositioned Stock

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

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

FOREIGN MILITARY SALES

Egypt

CONTRACTORS

Prime:

Oshkosh Corp. (Oshkosh, WI; Killeen, TX)

Engine:

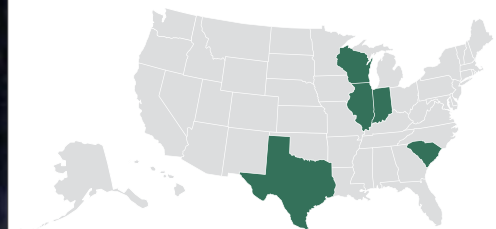
Caterpillar (Peoria, IL)

Transmission:

Allison Transmission (Indianapolis, IN)

Tires:

Michelin (Greenville, SC)



Heavy Loader

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides engineering units the capability to perform lifting, loading, hauling, digging, and trenching operations in support of Combat Support Brigades and Brigade Combat Teams.

DESCRIPTION

The Heavy Loader is a commercial vehicle modified for military use. The military version of the loader will be armored with an A-kit (armored floor plate) on all loaders and C-kit (armored cab) on selected loaders. There are two types of loaders: the Type I–Quarry Teams, with a capacity of 4.5 cubic yards; and Type II–general use, with a capacity of 5 cubic yards. The Heavy Loader currently has state-of-the-art operator displays, on-board diagnostics and prognostics, and blackout lighting. For operator comfort, each loader is equipped with heating and air conditioning as well as an air suspension seat. Modifications include chemical-resistant coating paint, rifle rack, military standard (MIL-STD-209) lift and tie-down, and hydraulic quick coupler systems for attachments.

Heavy Loaders provide the capability to lift, move, and load a variety of materials. They are also used to perform horizontal and vertical construction tasks supporting military construction operations including construction of roads, bridges, airfields, medical facilities, and demolition of structures, as well as loading in quarry operations.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

M916/M870 truck trailer for highway transportability

PROGRAM STATUS

- **Current:** All ballistics and vehicle performance testing completed; logistics development activities well underway

PROJECTED ACTIVITIES

- Continue fielding to units

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Heavy Loader

FOREIGN MILITARY SALES

None

CONTRACTORS

OEM:

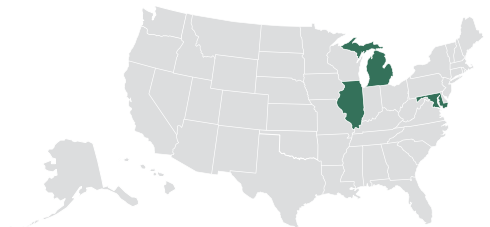
Caterpillar Defense and Federal Products
(Peoria, IL)

Armor:

BAE Systems (Rockville, MD)

Logistics:

XMCO (Warren, MI)



Hellfire Family of Missiles

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Engages and defeats individual moving or stationary advanced armor, mechanized or vehicular targets, patrol craft, buildings, or bunkers while increasing aircraft survivability.

DESCRIPTION

The AGM-114 Hellfire Family of Missile 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, Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS), Special Operations aircraft, Marine Corps AH-1W Super Cobra and the Air Force's Predator/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 (HEAT) capability for armored targets (AGM-114K); a blast fragmentation warhead (BFWH)

for urban, patrol boat and other “soft” targets (AGM-114M); and a metal augmented charge (MAC) warhead (AGM-114N) for urban structures, bunkers, radar sites, communications installations, and bridges. Beginning in 2012, a Hellfire multi-purpose warhead variant (AGM-114R) will be available to the warfighter that allows selection of warhead effects corresponding to a specific target type. The AGM-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 semi-active laser. 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.

Diameter: 7 inches

Weight: 99.8–107 pounds

Length: 64 inches

Maximum range:

Direct fire: 7 kilometers

Indirect fire: 8 kilometers

Minimum range: .5–1.5 kilometers

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** Laser Hellfire II missiles are procured annually to replace combat expenditures and war reserve requirements

PROJECTED ACTIVITIES

Laser Hellfire

- **Continue:** In production

Longbow Hellfire

- **Continue:** Sustainment activities








ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

System Description	Production	Characteristics	Performance
AGM-114A, B, C, F, FA – HELLFIRE Weight = 45 kg Length = 163 cm 	1982 – 1992	A, B, C have a Single Shaped-Charge Warhead; Analog Autopilot	<ul style="list-style-type: none"> Not Capable Against Reactive Armor Non-Programmable
		F has Tandem Warheads; Analog Autopilot	<ul style="list-style-type: none"> Reactive Armor Capable Non-Programmable
AGM-114K/K2/K2A – HELLFIRE II Weight = 45 kg Length = 163 cm 	1993 – until complete	<ul style="list-style-type: none"> Tandem Warheads Electronic Safe & Arm Device Digital Autopilot & Electronics Improved Performance Software 	<ul style="list-style-type: none"> Capable Against 21st Century Armor Hardened Against Countermeasures K-2 adds Insensitive Munitions (IM) K-2A adds Blast-Frag Sleeve
AGM-114L – HELLFIRE LONGBOW Weight = 49 kg Length = 180 cm 	1995 – 2005	<ul style="list-style-type: none"> Tandem Warheads Digital Autopilot & Electronics Millimeter-Wave (MMW) Seeker IM Warheads 	<ul style="list-style-type: none"> Initiate on Contact Hardened Against Countermeasures Programmable Software All-Weather
AGM-114M – HELLFIRE II (Blast Frag) Weight = 49 kg Length = 180 cm 	1998 – 2010	<ul style="list-style-type: none"> Blast-Frag Warhead 4 Operating Modes Digital Autopilot & Electronics Delayed-Fuse Capability 	<ul style="list-style-type: none"> For Buildings, Soft-Skin Vehicles Optimized for Low Cloud Ceilings Hardened Against Countermeasures WH Penetrates Target Before Detonation
AGM-114N – HELLFIRE II (MAC) Weight = 49 kg Length = 180 cm 	2003 – until complete	<ul style="list-style-type: none"> Metal-Augmented Charge – Sustained Pressure Wave 4 Operating Modes Delayed-Fuse Capability 	<ul style="list-style-type: none"> For Buildings, Soft-Skin Vehicles Optimized for Low Cloud Ceilings Hardened Against Countermeasures WH Penetrates Target Before Detonation
AGM-114P/P+ – HELLFIRE II (for UAS) Weight = 49 kg Length = 180 cm 	2003 – 2012	<ul style="list-style-type: none"> Shaped-Charge or Blast-Frag Designed for UAV Altitudes 21st Century Armor Capability 	<ul style="list-style-type: none"> P-2A adds Steel Frag Sleeve P-2B adds Tantalum Frag Sleeve P+ adds Enhanced IMU and SW Support, Many Customizations for Varying Battlefield
AGM-114R – HELLFIRE II (Bridge to JAGM- RW/UAS) Weight = 49 kg Length = 180 cm 	2012- until complete	<ul style="list-style-type: none"> Multi-purpose warhead Designed for all platforms Health Monitoring 	<ul style="list-style-type: none"> For all Target Sets P+ capabilities Increased Lethality and Engagement Envelope

Hellfire Family of Missiles

FOREIGN MILITARY SALES

Laser Hellfire:

Australia, Egypt, Greece, Israel, Kuwait, Netherlands, Saudi Arabia, Singapore, Spain, Taiwan

Direct commercial sale:

United Kingdom

Longbow Hellfire:

Israel, Japan, Kuwait, Singapore

Direct commercial sale:

United Kingdom

CONTRACTORS

Lockheed Martin (Troy, AL)

L-3 Communications (Chicago, IL)

Alliant Techsystems (Rocket City, WV)

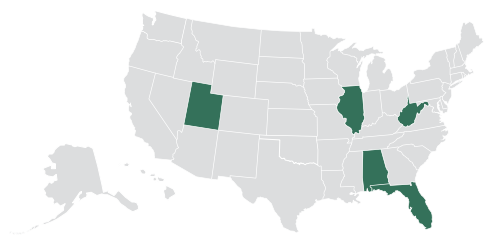
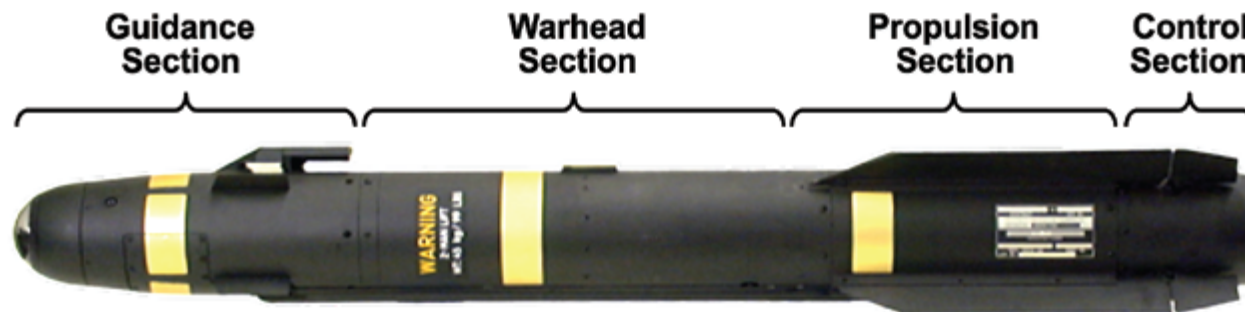
Moog Inc. (Salt Lake City, UT)

Laser Hellfire Missile System, guidance section, sensor group:

Hellfire LLC (Orlando, FL)

Longbow Hellfire:

Longbow LLC (Orlando, FL)



Helmet Mounted Night Vision Devices (HMNVD)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enhances the warfighter's visual ability and situational awareness while successfully engaging and executing operations day or night, whether in adverse weather or visually obscured battlefield conditions.

DESCRIPTION

Helmet Mounted Night Vision Devices (HMNVD) allow Soldiers to operate in low-visibility conditions and retain use of their hands. These devices include:

AN/PVS-14 Monocular Night Vision Device (MNVD)

The AN/PVS-14 MNVD is a head- or helmet-mounted passive device that amplifies ambient light and very near infrared (IR) energy to enable night operations. The system is designed for use in conjunction with rifle-mounted aiming lights. The AN/PVS-14 incorporates an IR illuminator

with a momentary and continuous-on switching function. IR operation and low-battery indicators are displayed within the Soldier's field of view. The AN/PVS-14 has a lightweight, fully adjustable military head strap that allows for comfortable long-term use. A wide range of optional accessories includes high-magnification lenses and a helmet-mounting bracket. The AN/PVS-14 can be mounted to the M16 Rifle/M4 Carbine receiver rail.

AN/AVS-6 Aviator's Night Vision Imaging System (ANVIS)

The AN/AVS-6 ANVIS is a third-generation, helmet-mounted, direct-view, image intensification device that enables aviators to operate more effectively and safely during low-light and degraded battlefield conditions. The low-light sensitivity represents a 35 to 40 percent improvement over the earliest ANVIS. Additionally, the gated power supply enables operation at significantly higher light levels than any of the previous designs.

The AN/PSQ-20 Enhanced Night Vision Goggle (ENVG)

The AN/PSQ-20 ENVG gives Soldiers new capabilities over existing night vision and thermal devices by incorporating image intensification and long-wave infrared (thermal) sensors into a single, helmet-mounted passive device. The ENVG combines 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 that obscure vision. This thermal capability makes the ENVG, unlike earlier night vision devices, useful during the day as well as at night. The ENVG allows Soldiers to rapidly detect and engage targets because it permits use of existing rifle-mounted aiming lights.

Several engineering enhancements to the ENVG improve its fit and function. For example, putting the battery pack on the rear of the helmet provides better balance and increases comfort as well as stability. The system is also designed to work with existing ballistic eye protection. In addition, the system is now more compact and easier to stow when not in use, which enhances

the Soldier's mobility. Another benefit of the ENVG is its compatibility with aiming lasers currently in use, allowing for a fully integrated system of thermal, laser and image intensification.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY10:** Fielded to units supporting Operation Enduring Freedom and Operation Iraqi Freedom
- **FY10:** Production and fielding
- **FY10:** Retrofit fielded units with the objective lens (AN/AVS-6)
- **FY10:** New production contract with multiple vendors (AN/PSQ-20)

PROJECTED ACTIVITIES

- **FY11:** Production and fielding in accordance with Headquarters Department of the Army G8 priorities

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Helmet Mounted Night Vision Devices (HMNVD)

FOREIGN MILITARY SALES

United Kingdom, Yemen

CONTRACTORS

AN/PVS-14:

ITT (Roanoke, VA)

L-3 Communications Electro-Optic Systems (Tempe, AZ; Garland, TX)

AN/AVS-6(V)3 ANVIS:

ITT (Roanoke, VA)

AN/PSQ-20:

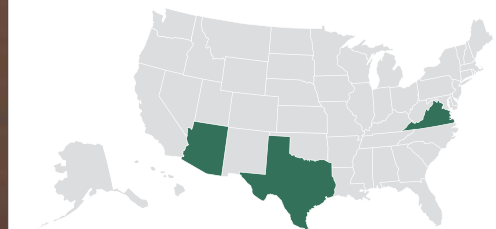
ITT (Roanoke, VA)



AN/PVS-14 Monocular Night Vision Device (MNVD)



The AN/PSQ-20 Enhanced Night Vision Goggle (ENVG)



High Mobility Artillery Rocket System (HIMARS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides close- and long-range precision rocket and missile fire support for Army and Marine early-entry expeditionary forces, contingency forces, and Modular Fires Brigades supporting Brigade Combat Teams.

DESCRIPTION

The M142 High Mobility Artillery Rocket System (HIMARS) is a combat-proven, wheeled artillery system, rapidly deployable via C-130 and operable in all weather and visibility conditions. HIMARS is mounted on a five-ton modified Family of Medium Tactical Vehicles chassis. The wheeled chassis allows for faster road movement and lower operating costs, and requires far fewer strategic airlifts (via C-5 or C-17) to transport a firing battery than the tracked M270 Multiple Launch Rocket System (MLRS) that it replaces. The M142 provides responsive, highly accurate, and extremely lethal surface-to-surface rocket and missile fires from 15 to 300 kilometers. HIMARS can fire all munitions in the current and planned suite of the MLRS Family of

Munitions (MFOM), including Army Tactical Missile System (ATACMS) missiles and Guided MLRS (GMLRS) rockets. HIMARS carries either six rockets or one missile, is self-loading and self-locating, and is operated by a three-man crew protected from launch exhaust/debris and ballistic threats by an armored man-rated cab. It operates within the MLRS command, control, and communications structure.

Ordnance options: All current and future MLRS rockets and ATACMS missiles, to include GMLRS DPICM and Unitary

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Family of Medium Tactical Vehicles (FMTV)

Other Major Interdependencies

C130/C-17, CNR (Combat Net Radio), GPS, JSTARS, MLRS MODS, PEO Integration, Q36/Q37 FIREFINDER, Sensor Suite, TBMCS (Air Space Clearance)

PROGRAM STATUS

- **1QFY10:** Full-rate production V contract award
- **3QFY10:** First increased crew protection (ICP)-equipped M142 delivered to U.S. Army
- **3QFY10:** Initiated ICP Cab fleet retrofit
- Fielded three Army National Guard (ARNG) battalions for total of 11 battalions fielded
- Continued Universal Fire Control System (UFCS) fleet upgrade
- Provide support to fielded units/units in combat
- Field and provide sustainment and support activities for foreign military sales customers

PROJECTED ACTIVITIES

- Continue fielding to active and reserve components
- Continue ICP and UFCS fleet retrofit
- Field Long Range Communication, Blue Force Tracker, and Drivers Vision Enhancement (DVE) mods

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

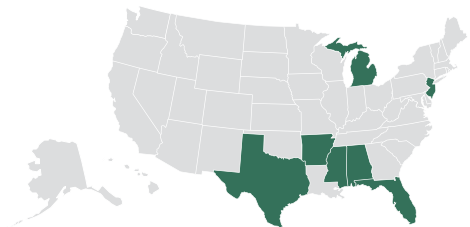
High Mobility Artillery Rocket System (HIMARS)

FOREIGN MILITARY SALES

Jordan, Singapore, United Arab Emirates

CONTRACTORS

Prime: Lockheed Martin
(Grand Prairie, TX; Camden, AR)
Increased Crew Protection (ICP) Cab:
BAE Systems (Sealy, TX)
LIU, WIU, PSU: Harris Corp. (Melbourne, FL)
Chassis: BAE Systems (Sealy, TX)
PNU: L-3 Communications Space & Navigation (Budd Lake, NJ)
Universal Gun Display Unit:
EFW (Fort Worth, TX)
Controller Assembly; Ball Screw:
R&D Electronics (Brownsboro, AL)
Pump, Reservoir, Motor:
Eaton-Vickers (Jackson, MS)
ADU, Boom/Hydraulic Gear Box:
Smiths Industries (Whippany, NJ)
Metal Parts: Beacon Industries (Dallas, TX)
Hydraulic Lines:
Eaton Aeroquip (Jackson, MI)
Reloader Hoist: Breeze (Union, NJ)
Manifolds:
Real Time Labs (Boca Raton, FL)
Geared Bearing: Kaydon (Muskegon, MI)
Fire Control System: Various vendors



EMPTY WEIGHT: 29,800 pounds
MAX SPEED: 100 kilometers per hour
MAX CRUISING RANGE: 480 kilometers

High Mobility Engineer Excavator (HMEE) I and III

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the Army with earthmoving vehicles that support self-deployability, mobility, and speed to keep pace with the Brigade Combat Teams (BCTs) within the future engineer force.

DESCRIPTION

The High Mobility Engineer Excavator Type I (HMEE-I) is a non-developmental, military-unique vehicle that will be fielded to the Army's BCTs and other selected engineer units. The HMEE-I can travel up to 60 miles per hour on primary roads and up to 25 miles per hour on secondary roads. The high mobility of the HMEE-I provides earthmoving machines capable of maintaining pace with the Army's current combat systems. All HMEE-Is will be capable of accepting armor, are C-130 transportable, and diesel driven. HMEE-I will meet all Operational Requirements Document requirements and replaces Small Emplacement Excavators (SEEs) in BCTs and IHMEEs in Stryker BCTs.

The HMEE-III is a commercial-based backhoe loader with military modifications that is intended for units that are relatively stationary and do not require the speed and rapid deployability of the HMEE-I. Its maximum speed is 25 miles per hour on improved roads, and seven miles per hour off-road. The HMEE-III is used by Combat Support Brigades in support of the Air/Ground Lines of Communication (A/G LOC) force. Tasks performed by the HMEE-III include repair and improvement of roads, trails, bridges, and airfields.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- All ballistics and vehicle performance testing completed
- **FY09:** Type classification—standard and full material release granted

PROJECTED ACTIVITIES

- Fielding is ongoing

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



High Mobility Engineer Excavator (HMEE) I and III

FOREIGN MILITARY SALES

HMEE-I

New Zealand

CONTRACTORS

OEM:

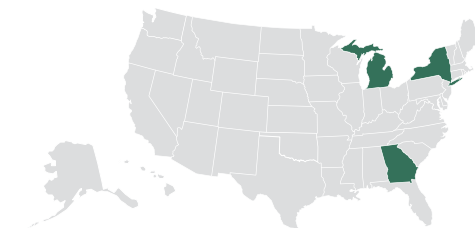
JCB Inc. (Pooler, GA)

Armor:

ADSI (Hicksville, NY)

Logistics:

XMCO (Warren, MI)



High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a light, tactical, wheeled vehicle for command and control, troop transport, shelter carrier, ambulance, towed-weapons prime mover, and weapons platforms throughout all of the battlefield or mission areas.

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 that satisfy Army, Marine Corps, Navy and Air Force requirements. It can be reconfigured as a troop carrier, armament carrier, shelter carrier, ambulance, tube-launched, optically tracked, wire-guided (TOW) missile carrier, and scout vehicle.

The HMMWV has incorporated technological upgrades; higher payload capacity; radial tires; EPA emissions updates; commercial bucket seats; three-point seat belts and other safety enhancements.

The HMMWV A2 configuration incorporates a four-speed, electronic transmission, a 6.5-liter diesel engine, and improvements in transportability. It serves as a platform for other Army systems such as the Ground-Based Common Sensor. The heavy variant has a payload of 4,870 pounds and is the prime mover for the light howitzer and heavier shelters. The expanded capacity vehicle (ECV) armament carrier has a payload capacity of 3,900 pounds, including crew and kits. The ECV chassis serves as a platform for mission payloads and for systems that exceed 4,400 pounds and is used for the M1114 Up-Armored HMMWV.

The Up-Armored HMMWV was developed to provide increased ballistic and blast protection, primarily for military police, special operations, and contingency force use. The current production variants—M1151A1 Armament Carrier, the M1152A1 (2-door variant) Troop/Cargo/Shelter Carrier, the M1165A1 (4-door variant) Command and Control Carrier and the M1167 TOW Carrier—are built on an ECV chassis, providing additional

carrying capacity for an integrated armor package (A-Kit) and the capability to accept add-on-armor kits (B-Kits). The M1151A1 is currently fielded with a gunner's protection kit. The HMMWV recapitalization program reconfigures older base models to R1 vehicles with increased capability, reliability, and maintainability.

SYSTEM INTERDEPENDENCIES

Numerous data interchange customers use the HMMWV to mount shelters and other systems. The M1101/1102 Light Tactical Trailer is the designed trailer for this vehicle.

PROGRAM STATUS

- Fielding of ECV HMMWVs to Army, Marine Corps, Navy, Air Force, and foreign military sales customers
- Recapitalization of older model HMMWVs
- Continued product improvement in response to Army requirements

PROJECTED ACTIVITIES

- Introduce upgraded components in response to Army requirements

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

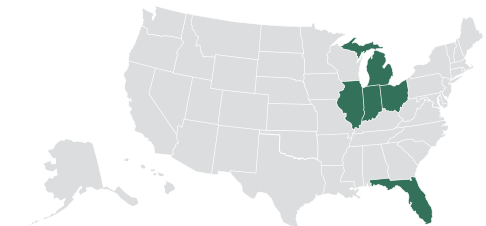
High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

FOREIGN MILITARY SALES

Afghanistan, Argentina, Bahrain, Bolivia, Chad, Colombia, Djibouti, Ecuador, Egypt, Ethiopia, Honduras, Israel, Kuwait, Luxembourg, Mexico, Oman, Philippines, Saudi Arabia, Sudan, Taiwan, Tanzania, Tunisia, Uganda

CONTRACTORS

Prime: AM General (South Bend, IN)
Armored Doors: Demmer (Lansing, MI)
Engine: GEP (Franklin, OH)
AC Units: Acme Radiator (Goshen, IN)
Stamping: Modineer Co. Inc. (Niles, MI)
 Defiance (Defiance, OH)
Transmission: GTP (Hillside, IL)
Underbody: ESA Mfg (Williamston, MI)
Alternator: C.E. Niehoff & Co.
 (Evanston, IL)
Seat Belt: Conax (St. Petersburg, FL)
Aluminum Sheet: Kaiser Aluminum
 (Chicago, IL)



Improved Environmental Control Units (IECU)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides standardized environmental control capabilities to the Department of Defense (DoD) in support of national security.

DESCRIPTION

The Improved Environmental Control Units (IECU) program consists of four standard sizes: 9,000 BTUH (British thermal units per hour); 18,000 BTUH; 36,000 BTUH; and 60,000 BTUH; all in five configurations. Once fielded, these systems will provide critical cooling to vital command, control, communications, computers, and intelligence (C4I) and other military electronic and support systems equipment for the U.S. Army and the wider DoD. The IECUs:

- Use R-410A refrigerant, a commercial industry standard that is compliant with all current environmental legislative requirements
- Increase reliability and decrease weight and power consumption compared to current military standard systems

- Leverage current industry standards while being ruggedized for military environments
- Are organically supportable
- Are fully operable up to +125 degrees Fahrenheit
- Provide quality cooling, heating, and dehumidification for command posts; command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems; weapon systems; and other battlefield support equipment while using a non-ozone-depleting refrigerant

Additional improvements to the warfighter in theatre are the IECU's soft start and limited inrush current; nuclear, biological, and chemical compatible and electromagnetic interference protected interface; fully embedded diagnostics; automatic safety controls; and remote control capability for operations that require users to be out of the direct area.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY09–10:** Low-rate initial production of 60,000 BTUH IECU
- **FY09–10:** Engineering and manufacturing development (EMD) Phase I for 9,000, 18,000, 36,000 BTUH family of IECUs
- **3QFY10:** Receive full materiel release and a full-rate production decision for the 60,000 BTUH IECU
- **4QFY10:** Competitively “downselect” vendor and continue EMD Phase II for 9,000, 18,000, 36,000 BTUH family of IECUs

PROJECTED ACTIVITIES

- **FY10–11:** EMD Phase II for 9,000, 18,000, 36,000 BTUH family of IECUs
- **FY10–11:** Production and fielding of 60,000 BTUH IECU

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Improved Environmental Control Units (IECU)

FOREIGN MILITARY SALES

None

CONTRACTORS

9,000, 18,000, 36,000 BTUH IECU

Competitor (EMD Phase I):

Hunter Defense Technologies (Solon, OH)

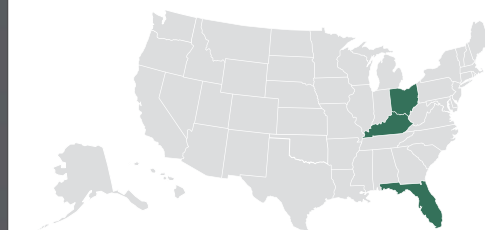
9,000, 18,000, 36,000 BTUH IECU

Competitor (EMD Phase I):

Mainstream Engineering (Rockledge, FL)

60,000 BTUH IECU:

DRS-ESI (Florence, KY)



Improved Ribbon Bridge (IRB)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Improves mobility by providing continuous roadway or raft capable of crossing military load classification 96 (wheeled)/80 (tracked) vehicles over non-fordable wet gaps.

DESCRIPTION

The Improved Ribbon Bridge (IRB) Float Ribbon Bridge System is issued to the Multi-Role Bridge Company (MRBC). The U.S. Army Modified Table of Organization and Equipment (MTOE) authorizes MRBCs to consist of: 42 IRB bridge bays (30 interior bays and 12 ramp bays), 42 Bridge Adapter Pallets (BAP), 14 Bridge Erection Boats (BEB), 14 Improved Boat Cradles (IBC), 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 company. The IRB can be configured as either a continuous “full closure” bridge or assembled and used for rafting operations. The IRB has a Military Load Capacity (MLC) of 105

wheeled/85 tracked (normal) and 110 wheeled/90 tracked (caution) vehicles. This MLC will support the Joint force commander’s ability to employ and sustain forces worldwide. The IRB is used to transport weapon systems, troops, and supplies over water when permanent bridges are not available. Bridge capabilities are provided in water currents moving at up to 10 feet per second.

The bridge system allows two-way traffic for HMMWV-width vehicles and increased MLC at all water current speeds over those of Standard Ribbon Bridge. It is usable on increased bank heights over 2.2 meters (7.2 feet) and the improved folding/unfolding mechanism avoids cable breakage. Partially disassembled bays are C-130 transportable, while are externally transportable by CH-47 and CH-53.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

IRB operations rely and are interdependent upon fully mission-capable CBTs, BAPs, IBCs, and BEB assets within a fully MTOE-equipped MRBC.

PROGRAM STATUS

This system has been fielded since 2002.

- **1QFY10:** 2225th MRBC
- **3QFY10:** 957th MRBC
- **3QFY10:** 164th RTI
- **4QFY10:** 1041st MRBC

PROJECTED ACTIVITIES

Fieldings are ongoing based on the Army Requirements Prioritization List.

- **1QFY11:** 189th and 401st MRBCs
- **2QFY11:** 132nd and 551st MRBCs
- **3QFY11:** 35th EN TNB BDE

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Improved Ribbon Bridge (IRB)

FOREIGN MILITARY SALES

None

CONTRACTORS

General Dynamics European Land Systems—Germany (GDELS-G) (Kaiserslautern, Germany)

Logistic support:

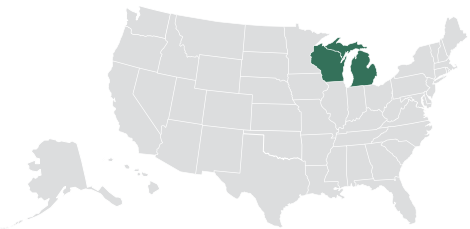
AM General (AMG) (Livonia, MI)

CBT manufacturer:

Oshkosh Corp. (Oshkosh, WI)

BEB manufacturer:

FBM Babcock Marine (Isle of Wight, United Kingdom)



Improved Target Acquisition System (ITAS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

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, wire-guided (TOW) missiles or directing the employment of other weapon systems to destroy those targets.

DESCRIPTION

The Improved Target Acquisition System (ITAS) is a multipurpose weapon system, used as a reconnaissance, surveillance, and target acquisition sensor. ITAS provides long-range anti-armor/precision assault fire capabilities to the Army's Infantry and Stryker Brigade Combat Teams (BCTs) 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.

ITAS's second-generation forward-looking infrared sensors double the long-range surveillance of its predecessor, the M220 TOW system. It offers improved hit probability with aided target tracking, improved missile flight software algorithms, and an elevation brake to minimize launch transients. The ITAS includes an integrated far target location capability (day/night sight with laser rangefinder), 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 far-target location (FTL) enhancement, direct other fires to destroy them. The FTL enhancement consists of a position attitude determination subsystem (PADS) that provides the gunner with his own Global Positioning System

(GPS) location and a 10-digit grid location to his target through the use of differential GPS. With the PAQ-4/PEQ-2 Laser Pointer, ITAS can designate .50 caliber or MK-19 grenade engagements. The ITAS can fire all versions of the TOW family of missiles.

The TOW 2B Aero and the TOW Bunker Buster have an extended maximum range to 4,500 meters. The TOW 2B Aero flies over the target (off-set above the gunner's aim point) and uses a laser profilometer and magnetic sensor to detect and fire two downward-directed, explosively formed penetrator warheads into the target. TOW Bunker Buster, with its high-explosive blast-fragmentation warhead, is optimized for performance against urban structures, earthen bunkers, field fortifications, and light-skinned armor threats. ITAS operates from the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the dismount tripod platform, and Stryker anti-tank guided missile (ATGM) vehicles.

SYSTEM INTERDEPENDENCIES

The ITAS system is integrated on the M1121/1167 HMMWV and the Stryker ATGM. The ITAS system is the guidance for the TOW missile.

PROGRAM STATUS

- **Current:** ITAS has been fielded to 19 active and 10 reserve component Infantry BCTs and seven Stryker BCTs
- **Current:** The Marine Corps has begun fielding the ITAS to infantry and tank battalions to replace all Marine Corps M220A4 TOW 2 systems by 2012

PROJECTED ACTIVITIES

- **Continue:** ITAS total package fielding
- **FY12:** Complete Fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Improved Target Acquisition System (ITAS)

FOREIGN MILITARY SALES

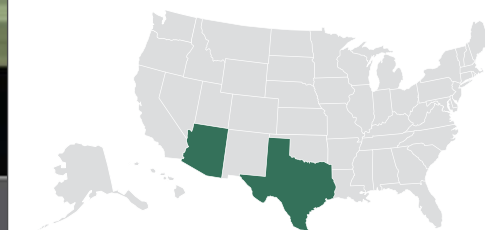
NATO Maintenance and Supply Agency,
Canada

CONTRACTORS

Raytheon (McKinney, TX)

Training Devices:

Intercoastal Electronics (Mesa, AZ)



Installation Protection Program (IPP)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides an effective chemical, biological, radiological, and nuclear (CBRN) protection, detection, identification, and warning system for military installations.

DESCRIPTION

The Installation Protection Program (IPP) will allow Department of Defense installations to effectively protect personnel and critical operations against a CBRN event, to effectively respond with trained and equipped emergency personnel, and to ensure installations can continue critical operations during and after an attack.

IPP uses a tiered approach of government and commercial off-the-shelf capabilities optimized for an installation. The Baseline Tier provides a foundation for installations to maintain a standard level of

preparedness for a CBRN incident. This tier consists of non-materiel solutions that address military-civilian interoperability, system architecture, policy, doctrine, training, and administration. It includes Joint training products, planning templates, Mutual Aid Agreement templates, and exercise templates and scenarios. The IPP Portal (IP3) makes these solutions available through Joint Knowledge Online (JKO) and Army Knowledge Online (AKO) at <https://www.us.army.mil/suite/page/449823> or through a link on the Joint Acquisition CBRN Knowledge System (JACKS) website at <https://jacks.jpeocbd.osd.mil>.

Tier 1 focuses on enhancing an installation's existing emergency responder capabilities and enables an installation to prepare, respond, and transfer the mission after a CBRN attack. Tier 1 installations are critical to the overall accomplishment of the national military strategy or installations that provide combat service support. Tier 1 includes all Baseline Tier capabilities and adds individual protective equipment for emergency responders and first

receivers; portable radiological and chemical detection equipment; portable biological collectors with analysis and identification laboratory support; personal dosimeters; hazard marking and controlling equipment; medical countermeasures for first responders/receivers; mass casualty decontamination showers and tents; mass casualty litters and support equipment; mass notification systems; an incident management system; and new equipment training and field exercise support.

Tier 2 applies to installations hosting one-of-a-kind, critical strategic missions or capabilities. The objective of Tier 2 is to provide installations with the capability to prepare, react, and continue critical missions or capabilities without significant interruption. The Tier 2 capability package includes Baseline and Tier 1 capabilities plus fixed chemical detectors for warfare agents and toxic industrial materials/chemicals; fixed biological collectors with analysis and identification laboratory support; radiological monitoring equipment for entry controllers; collective protection

for one of a kind strategic assets (up to 3,000 square feet); and a decision support system of software tools and networked sensors.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY10:** Complete 18 additional installations

PROJECTED ACTIVITIES

- **4QFY11:** Complete 16 additional installations

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

CBRN IPP



CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR INSTALLATION PROTECTION PROGRAM

Installation Protection Program (IPP)

FOREIGN MILITARY SALES

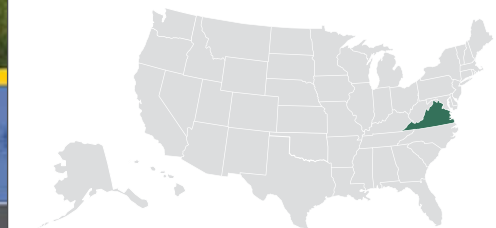
None

CONTRACTORS

Science Applications International Corp.
(SAIC) (Falls Church, VA)

AIE:

Computer Sciences Corp. (CSC)
(Falls Church, VA)



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

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides force-on-force and force-on-target collective training at home stations and Combat Training Centers (CTCs).

DESCRIPTION

The Instrumentable–Multiple Integrated Laser Engagement System (I-MILES) is the Army's primary live simulation system and is composed of several component systems. I-MILES products include man-worn systems, combat vehicle systems, target systems, shoulder-launched systems, and controller devices. The system operates within a live, virtual, and constructive integrated architecture that supports Army and Joint exercises.

The I-MILES Combat Vehicle Tactical Engagement Simulation System (CV TESS) provides live training devices for armored vehicles with fire control systems including Bradley Fighting

Vehicles and Abrams Tanks. It interfaces and communicates with CTCs and home station instrumentation, providing casualty and battlefield damage assessments for after-action reporting. I-MILES CV TESS provides real-time casualty effects necessary for tactical engagement training in direct fire force-on-force and instrumented training scenarios.

The I-MILES Individual Weapons System (IWS) is a man-worn dismounted system, providing event data that can be downloaded for use in an after action review and training assessment. The IWS replaces Basic MILES IWS at home stations and Maneuver CTCs Army-wide.

The Tactical Vehicle Systems (TVS) encompasses the Wireless Independent Target System (WITS) and replaces the previously fielded Independent Target System (ITS) and other Basic MILES currently fielded on non-turret military vehicles. TVS/WITS designs include Stryker variants, tactical wheeled vehicle configurations, and a separate configuration for tracked/oversized vehicles such as the M113 and Mine Resistant Ambush Protected vehicles.

The Shoulder Launched Munitions (SLM) replaces Basic MILES and provides better training fidelity for blue forces' AT4 weapons and threat weapons using opposing force RPG7 visual modifications.

The Universal/Micro Controller Devices (UCD/MCD) are low-cost, lightweight devices used by observer controllers and maintenance personnel to initialize, set up, troubleshoot, reload, reset, resurrect, and manage participants during live force-on-force training exercises. These modular, self-contained devices interact and provide administrative control of all other MILES devices.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

IWS:

- **Current:** Fielded approximately 14,000 IWS kits to the National Training Center (NTC) and over 54,000 kits Army-wide

MXXI CVS:

- **Current:** Fielded over 400 systems to the NTC and Joint Readiness Training Center.

SLM:

- **Current:** Fielded over 1,000 SLM kits to NTC and over 5,400 kits Army-wide

UCD/MCD:

- **Current:** Fielded over 12,000 CD kits Army-wide

TVS/WITS:

- **Current:** Fielded approximately 2,000 WITS kits to various home stations
- **4QFY10:** TVS contract award

PROJECTED ACTIVITIES

IWS and SLM:

- **FY11:** Full and open competition for recompetete

UCD/MCD:

- **FY11:** Complete basis of issue

CV TESS:

- **FY11:** Full and open competition for recompetete

TVS/WITS:

- **FY11:** TVS will complete testing and start fielding; WITS will complete fielding to outside continental United States (U.S. Army, Europe, and Korea)

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

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

Tactical Vehicle System



MXXI Combat Vehicles System



Individual Weapons System

HALO
Halo
Wt: 5 lbs
Battery: Lithium

TORSO
Torso
Wt: 2.5 lbs
Battery: AA
Lithium

SAT
SAT
Wt: 1 lbs
Battery: 1/2 AA
Lithium

Shoulder Launched Munitions



FOREIGN MILITARY SALES

None

CONTRACTORS

IWS:

CUBIC Defense Sys. (San Diego, CA)

WITS:

Lockheed Martin (Orlando, FL)

TVS:

CUBIC Defense Systems (San Diego, CA)

MXXI CVS:

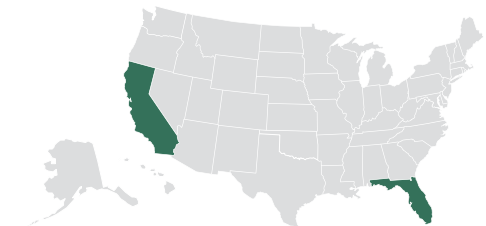
Lockheed Martin (Orlando, FL)

SLM:

Lockheed Martin (Orlando, FL)

CV TESS:

In competition



Integrated Air and Missile Defense (IAMD)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the full combat potential of an Integrated Air and Missile Defense capability through a network-centric “plug and fight” architecture at the component level (e.g., launchers and sensors) and a common command and control (C2) system.

DESCRIPTION

Army Integrated Air and Missile Defense (IAMD) will enable the integration of modular components (current and future AMD sensors, weapons, and C2) with a common C2 capability in a networked and distributed “plug and fight” architecture. This common C2, called the IAMD Battle Command System (IBCS), will provide standard configurations and capabilities at each echelon. This allows Joint, interagency, intergovernmental, and multinational

(JIIM) AMD forces to organize based on mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC). Shelters and vehicles may be added to enable broader missions and a wider span of control executed at higher echelons. A network-enabled “plug and fight” architecture and common C2 system will enable dynamic defense design and task force reorganization, and provide the capability for interdependent, network-centric operations that link joint IAMD protection to the supported force scheme of operations and maneuver.

This Army IAMD system-of-systems will enable extended range and non-line-of-sight engagements across the full spectrum of aerial threats, providing fire control quality data to the most appropriate weapon to successfully complete the mission. Furthermore, it will mitigate the coverage gaps and the single points of failure that have plagued AMD defense design in the past as well as reduce manpower, enhance training, and reduce operation and support costs.

SYSTEM INTERDEPENDENCIES

In this Publication

Early Infantry Brigade Combat Team (E-IBCT), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), Joint Tactical Ground Stations (JTAGS), Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

Other Major Interdependencies

ABCS, AEGIS, AWACS, BCS, BMDS, CAC2S, C2BMC Planner, DD(X), E-2C, Improved Sentinel, MEADS, Patriot, THAAD

PROGRAM STATUS

- **4QFY07:** Approval of two-contractor competition strategy
- **1QFY08:** Approval of acquisition strategy
- **2QFY08:** Request for proposal released
- **4QFY08:** IAMD Battle Command System contract award
- **1QFY10:** Milestone B approval to enter engineering and manufacturing development
- **1QFY10:** Down-select to single IBCS development prime contractor

- **2QFY10:** Award of A-Kit design and development contract

PROJECTED ACTIVITIES

- **4QFY11:** IAMD Increment 2 critical design review
- **1QFY12:** Defense Acquisition Board in process review
- **1QFY15:** Milestone C

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

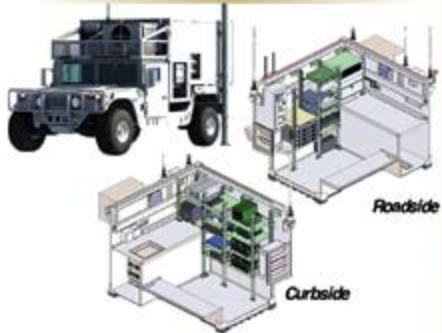
Production & Deployment

Operations & Support

Integrated Air and Missile Defense (IAMD)

Common Products

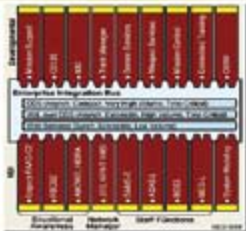
Common CP Configuration



Common P&F Capability

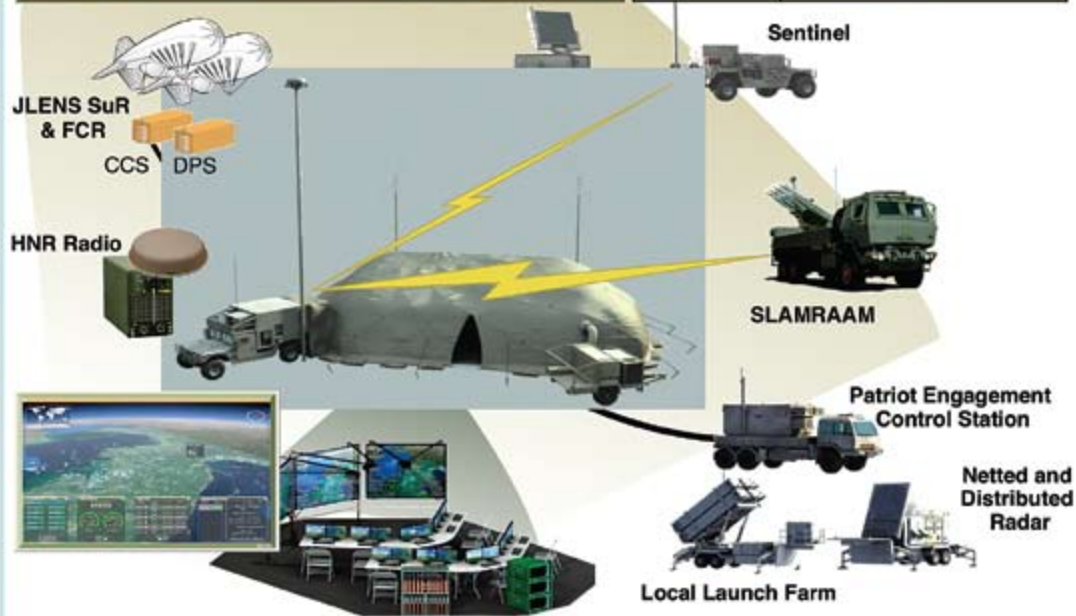


Common Software



Common C2

Air & Missile Defense Reference Battalion	
Battalion CP	1
Battery CP	5 (4 Patriot, 1 SLAMRAAM)
Platoon CP	5 (3 SLAMRAAM, 2 JLENS)
P&F Kits	23 (4 Patriot, 12 SLAMRAAM, 7 Sentinel)



FOREIGN MILITARY SALES

None

CONTRACTORS

IBCS Development:

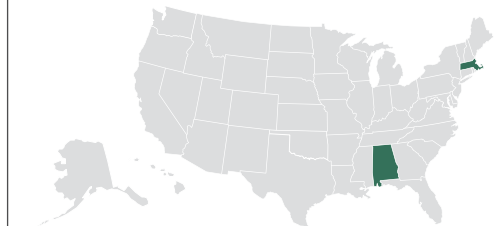
Northrop Grumman (Huntsville, AL)

A-Kit Design and Development:

Raytheon (Andover, MA; Tewksbury, MA)

SETA Support:

DMD (Huntsville, AL)



Integrated Family of Test Equipment (IFTE)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Develops, acquires, fields, and sustains automatic test equipment with the capability to troubleshoot, isolate, and diagnose faults, as well as verify the operational status of the weapon system.

DESCRIPTION

The Integrated Family of Test Equipment (IFTE) consists of interrelated, integrated, mobile, tactical, and man-portable systems. These rugged, compact, lightweight, general-purpose systems enable verification of the operational status of weapon systems, as well as fault isolation to the line-replaceable unit at all maintenance levels, both on and off the weapon system platform. IFTE is a Early Infantry Brigade Combat Team (E-IBCT) Associate Program.

Base Shop Test Facility–Version 3 (BSTF(V)3):

The BSTF(V)3 is an off platform automatic test system which tests electronic Line Replaceable Units (LRU) and Shop Replaceable Units (SRU) of ground and aviation systems.

Electro-Optics Test Facility (EOTF):

The EOTF tests the full range of Army electro-optical systems, including laser transmitters, receivers, spot trackers, forward-looking infrared systems, and television systems. It is fully mobile with VXI instrumentation, touch-screen operator interface, and an optical disk system for test program software and electronic technical manuals.

Next Generation Automatic Test Station (NGATS):

The NGATS is the follow-on reconfigurable, rapidly deployable, expeditionary interoperable tester and screener that supports Joint operations, reduces logistics footprint, and replaces/consolidates obsolete, unsupportable automatic test equipment in the Army's inventory.

Maintenance Support Device–Version 3 (MSD-V3):

The latest generation MSD is a lightweight, rugged, compact, man-portable, general-purpose, at system automatic tester that has a docking station, detachable core tablet, and swivel and touch screen capabilities. It is used to verify the operational status of aviation, automotive, electronic, and missile weapon systems and to isolate faulty components for immediate repair or replacement. MSD-V3 hosts Interactive Electronic Technical Manuals and the Digital Logbook, is used as a software uploader/verifier to provide or restore mission software to weapon systems, and supports condition-based maintenance data collection and reporting. MSD-V3 supports more than 50 weapon systems and is used by more than 40 military occupational specialties.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY09:** NGATS Milestone C
- **3QFY09:** NGATS Milestone C low-rate initial production (LRIP)
- **4QFY09:** MSD-V3 contract award
- **1QFY10:** NGATS LRIP
- **Current:** MSD-V2 production and fielding
- **Current:** EOTF operations and support

PROJECTED ACTIVITIES

- **1QFY11:** MSD-V3 production and fielding
- **2QFY12:** NGATS first unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Integrated Family of Test Equipment (IFTE)



Next Generation Automatic Test Station (NGATS)

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, Yemen

CONTRACTORS

MSD-V3:

Vision Technology Miltope Corp.
(Hope Hull, AL)

BSTF(V)3:

Northrop Grumman (Rolling Meadows, IL)

EOTF:

Northrop Grumman (Rolling Meadows, IL)

NGATS:

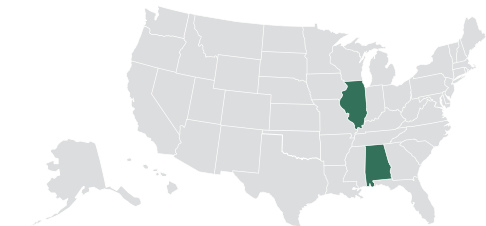
Northrop Grumman (Rolling Meadows, IL)
DRS-TEM (Huntsville, AL)



**Maintenance Support Device-
Version 3 (Type 1) with docking station**



**Maintenance Support Device-
Version 3 (Type 1) laptop only**



Interceptor Body Armor

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Increases warfighter lethality and mobility by optimizing Soldier protection while effectively managing all lifecycle aspects of personal protective equipment.

DESCRIPTION

Interceptor Body Armor (IBA) is modular, multiple-threat body armor with components consisting of an Improved Outer Tactical Vest (IOTV); two Enhanced Small Arms Protective Inserts (ESAPI); two Enhanced Side Ballistic Inserts (ESBI); and Deltoid Protectors (DP).

Eleven sizes of IOTVs and five sizes of ESAPI plates are being fielded. The basic system weight (IOTV, ESAPI, ESBI, size medium) is 31 pounds and provides increased area coverage and greater protection. The medium IOTV, without plates, weighs 15 pounds and protects against fragmentation and 9mm rounds. The ESAPI plates provide additional protection and can withstand multiple small arms hits. IBA includes attachable throat,

groin, and neck protectors. It also has webbing attachment loops on the front and back of the vest for attaching pouches for the Modular Lightweight Load-Carrying Equipment (MOLLE). DP provide additional protection from fragmentary and 9mm projectiles to the upper arm.

During Operation Iraqi Freedom combat operations, the side areas not covered by the ESAPI component of the IBA were identified by combat commanders and medical personnel as a vulnerability that needed to be addressed. To meet this threat and provide an increased level of protection, the ESBI was developed.

Commanders have the flexibility to tailor the IBA to meet the specific mission needs or changing threat conditions.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** In production and being fielded
- **4QFY10:** 402,400 IOTVs and 943,101 ESAPI sets fielded

PROJECTED ACTIVITIES

- **Continue:** Fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



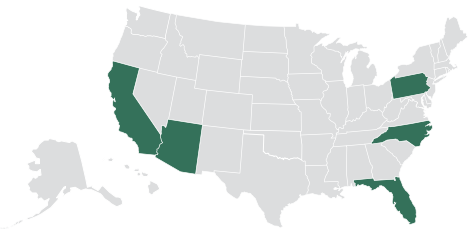
Interceptor Body Armor

FOREIGN MILITARY SALES

None

CONTRACTORS

Armacel Armor (Camarillo, CA)
 Ceradyne, Inc. (Costa Mesa, CA)
 UNICOR Protective Materials Company
 (Miami Lakes, FL)
 BAE Systems (Phoenix, AZ)
 ArmorWorks (Chandler, AZ)
 KDH Defense Systems (Johnstown, PA)
 MSA Armor and Equipment (St. Pauls, NC)
 Point Blank Solutions
 (Pompano Beach, FL)
 The Protective Group (Miami Lakes, FL)



Javelin

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the dismounted Soldier a man-portable, fire-and-forget system that is highly lethal against targets ranging from main battle tanks to fleeting targets of opportunity found in current threat environments facing the Army.

DESCRIPTION

The Close Combat Missile System–Medium (CCMS-M) Javelin is highly effective against a variety of targets at extended ranges under day/night, battlefield obscurants, adverse weather, and multiple counter-measure conditions. The system's soft-launch feature permits firing from enclosures commonly found in complex urban terrain. Javelin's 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) with a built-in-test (BIT), and a modular missile encased in a disposable launch tube assembly. The CLU provides stand alone all weather and day/night surveillance capability ideally suited for infantry operations in Afghanistan.

The Javelin missile and CLU together weigh 48.8 pounds. The system also includes training devices for tactical training and classroom training.

Javelin's fire-and-forget technology allows the gunner to fire and immediately take cover, to move to another fighting position, or to reload. The Javelin provides enhanced lethality through the use of a tandem warhead that will defeat all known armor threats. It is effective against both stationary and moving targets. This system also provides defensive capability against attacking/hovering helicopters. The performance improvements in current production Javelin Block I CLUs are: increased target identification range, increased surveillance time with new battery and software management of the "on" time, and external RS-170 interface for video output. The performance improvements in current production Javelin Block I missiles are: increased probability of hit/kill at 2,500 meters, improved warhead lethality, and reduced time of flight. In current conflicts the CLU is being used as a stand-alone surveillance and target acquisition

asset. The Army is the lead for this joint program with the Marine Corps. Javelin is a complementary system as the lethality solution for the Armed Robotic Vehicle–Assault (Light).

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY07:** Received full materiel release on Block I CLU
- **4QFY08:** Received full materiel release on Block I missile
- **Current:** Missile and CLU production
- **Current:** CLU total package fielding
- **Current:** Javelin has been fielded to more than 95 percent of active duty units; fielding is underway to the National Guard

PROJECTED ACTIVITIES

- **Continue:** A Multipurpose Warhead is planned to improve lethality against irregular/soft targets
- **Continue:** CLU production
- **Continue:** CLU total package fielding
- **Continue:** Missile production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Javelin

FOREIGN MILITARY SALES

Australia, Czech Republic, France, Ireland, Jordan, Lithuania, New Zealand, Norway, Oman, Taiwan, United Arab Emirates, United Kingdom

CONTRACTORS

CLU: Raytheon Missile Systems (Tucson, AZ); DRS Technologies (Dallas, TX); Raytheon (McKinney, TX; Dallas, TX; Garland, TX)

GEU: Raytheon Missile Systems (Tucson, AZ); Raytheon (McKinney, TX; Dallas TX; Garland, TX)

ESAF/Seeker: Lockheed Martin (Orlando, FL; Ocala, FL)

FPA: DRS Technologies (Dallas, TX)

Propulsion Unit: Aerojet (Camden, AR)

Missile Final Assembly: Lockheed Martin (Troy, AL)

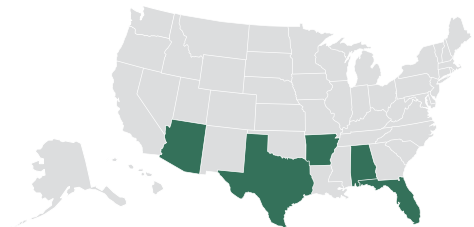
FTT, EPBST: ECC International (Orlando, FL)

Batteries: Acme Electric (Tempe, AZ)

Precursor Whd: General Dynamics Ordnance and Tactical Systems (Camden, AR)

Containers: Independent Pipe Products (Grand Prairie, TX)

Test Support: Javelin Joint Venture (Huntsville, AL)



Joint-Automatic Identification Technology (J-AIT)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Manages the Radio Frequency–In Transit Visibility (RF-ITV) system, which provides automated, accurate, near-real-time data collection, aggregation, and retrieval of ITV data that allows the warfighter to see and manage cargo and equipment shipments worldwide.

DESCRIPTION

Joint-Automatic Identification Technology (J-AIT) enables automatic data capture for logistics information systems and in-transit visibility (ITV) of cargo and equipment for commanders at all levels across the Department of Defense (DoD). J-AIT supports the Defense Reform Initiative Directive #54–Logistics Transformation Plans, Objective #3, which calls for achieving total asset visibility and accessibility through the use of AIT. The focused logistics transformation path in Joint Vision 2020 requires the implementation of AIT and like-information-systems that provide accurate, actionable total asset visibility. AIT is also a critical component of DoD-mandated Item Unique Identification. J-AIT provides

ITV to DoD through web portals (Non-Secure Internet Protocol Router Network [NIPRNET] and Secure Internet Protocol Router Network [SIPRNET]) and feeds ITV data to over 23 other systems across the DoD. J-AIT’s RF-ITV system is the DoD’s system of record for all active Radio Frequency Identification (RFID) data. J-AIT also provides procurement and technical services to DoD for AIT and RFID technology. The RF-ITV system consists of three production server sites (continental United States, Germany, and Korea) and a worldwide infrastructure of read sites covering key DoD transportation nodes. J-AIT provides product and technical services across the suite of AIT technologies by establishing and maintaining contracts that are available to all users across DoD.

SYSTEM INTERDEPENDENCIES

Global Combat Support System–Army (GCSS-Army); Battle Command Sustainment Support System (BCS3); Logistics Modernization Program; Transportation Coordinators’ Automated Information for Movement System II (TC-AIMS II)

PROGRAM STATUS

- **RF-ITV** system added satellite data feeds and other system upgrades to support the warfighters in Southwest Asia; J-AIT established RF-ITV sites along the Northern Distribution Network in Europe

PROJECTED ACTIVITIES

- **1QFY11:** Recompete the RF-ITV II contract
- **1QFY11:** Recompete the PM J-AIT support contract
- **FY11:** Transition to International Organization for Standardization RFID tags

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



TOTAL AIT SOLUTIONS



CK81G_PDCT-E



Dual Range Active RFID Tag (ST654)



Deployment Kit (DK-RFID)



Handheld Bar Code Scanner



Bar Code Label Printer



Fixed Interrogator



Portable Bar Code Label Printer

Joint-Automatic Identification Technology (J-AIT)

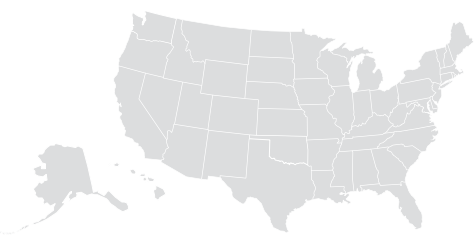
FOREIGN MILITARY SALES

None

CONTRACTORS

None

pm J-AIT
PRODUCT MANAGER
JOINT-AUTOMATIC IDENTIFICATION TECHNOLOGY



Joint Air-to-Ground Missile (JAGM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a single variant, precision-guided, air-to-ground weapon for use by Joint service manned and unmanned aircraft to destroy stationary and moving high-value land and naval targets.

DESCRIPTION

The Joint Air-to-Ground Missile (JAGM) System is a precision guided munition (PGM) for use on Joint rotary and fixed wing platforms and unmanned aerial systems (UAS) to destroy high-value stationary, moving, and relocatable land and naval targets. JAGM is the intended replacement for HELLFIRE, air-launched TOW and Maverick families of missiles.

JAGM will increase the warfighter's operational flexibility by effectively engaging a variety of stationary and mobile targets on the battlefield from longer ranges, including advanced heavy/light armored vehicles, bunkers, buildings, patrol craft, command and control vehicles, transporter/erector (e.g., SCUD) launchers, artillery systems, and radar/air

defense systems. The JAGM System is a Joint program with the Army, Navy, and Marine Corps and includes missiles, trainers, containers, support equipment, and launchers. Its multi-mode seeker will provide robust capability in adverse weather, day or night, and in an obscured/countermeasured environment. The warhead is designed for high performance against both armored and non-armored targets and the firing platform is interoperable with the command, control, communications, computer, intelligence, surveillance and reconnaissance (C4ISR) network. JAGM will be fielded to the Super Hornet (F/A-18E/F), Apache (AH-64D), and the Super Cobra (AH-1Z) in 2016. Follow-on fieldings of JAGM on the Seahawk (MH-60R) and the Sky Warrior UAS are planned for 2017.

Diameter: 7 inches

Weight: 108 pounds

Length: 70 inches

Range: 500–16,000 meters for rotary wing; 2,000–28,000 meters for fixed wing

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Rotary-wing Launcher/Rack: M299;
Fixed-wing Launcher Rack: design to be determined

PROGRAM STATUS

- **4QFY08:** Competitive technology development contracts awarded
- **1QFY09:** Integrated baseline review
- **4QFY09:** System requirements review
- **3QFY10:** Preliminary design review

PROJECTED ACTIVITIES

- **1QFY11:** Milestone B

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Air-to-Ground Missile (JAGM)

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime: Raytheon (Tucson, AZ)

Lockheed Martin (Orlando, FL)

Launcher Integration: Boeing
(St. Louis, MO)

Rocket Motor: Aerojet (Gainesville, VA)

Alliant Techsystems (Rocket Center, WV)

Ordnance & Tactical Systems: General
Dynamics (St. Petersburg, FL)

Warhead: GD-OTS (Niceville, FL)

Seeker: Lockheed Martin (Ocala, FL)

CAS: Moog Inc. (East Aurora, NY)

Optical Assembly: Perkin Elmer (Ohio, OH)

CCAs Distribution: Avnet (Chandler, AZ)

TJM Electronic (Tempe, AZ)

F/W Plat Int: ATK (Woodland Hills, CA)

FPA: CMC Electronics (Mason, OH)

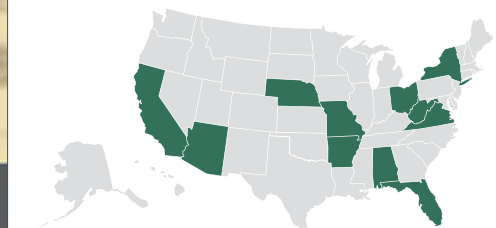
Comp Midbody: GD-ATP (Lincoln, NE)

Final Assembly: Lockheed Martin
(Troy, AL)

R/W Launcher: Marvin Engineering
(Inglewood, CA)

FM: Perkin Elmer (Ohio, OH)

Rocket Motor: Aerojet (Camden, AR)



Joint Battle Command–Platform (JBC-P)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides accurate, on-the-move, digital command and control and situational awareness to tactical leaders at all echelons to the platform and dismounted domains.

DESCRIPTION

Joint Battle Command–Platform (JBC-P) is a foundation for achieving information interoperability between Joint warfighting elements on current and future battlefields. As the next generation of Force XXI Battle Command Brigade and Below technology, it will be the principal command and control system for the Army and Marine Corps at the brigade-and-below level, providing users access to the tactical information necessary to achieve information dominance over the enemy. It consists of computer hardware and software integrated into tactical vehicles, aircraft, and provided to dismounted forces. JBC-P uses a product line approach to software development to save cost and promote a common architecture. Components include a core software module that provides

common functionality required of all platforms and tailored software modules with unique capabilities for dismounted, vehicle, logistic, aviation, and command post elements. JBC-P software is designed for use over the Blue Force Tracking II transceiver and associated satellite networks, as well as ground-based networks. Other key enhancements include a redesigned, intuitive user interface and faster mapping software to quickly process and display critical graphics. It will be the primary provider and user of digital battle command and situational awareness across the spectrum of operations and will allow warfighters to more effectively and consistently communicate critical information over networks that connect the most distant and remote locations.

SYSTEM INTERDEPENDENCIES

In this Publication

FBCB2, Joint Tactical Radio System Handheld, Manpack, Small Form Fit (JTRS HMS), Movement Tracking System (MTS), Warfighter Information Network–Tactical (WIN-T) Increment 1, WIN-T Increment 2, WIN-T Increment 3, Advanced Field Artillery Tactical

Data System (AFATDS), Battle Command Sustainment Support System (BCS3), Distributed Common Ground System–Army (DCGS-A), Nett Warrior (NW)

Other Major Interdependencies

AMDWS, ASAS, BFT-Avn, DTSS, CPOF, JTCW, JSTARS MCS, JTRS, JC2C

PROGRAM STATUS

- **4QFY09:** Milestone B
- **4QFY10:** Battlefield automation appraisal

PROJECTED ACTIVITIES

- **Continue:** JBC-P development and testing

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Battle Command–Platform (JBC-P)

FOREIGN MILITARY SALES

None

CONTRACTORS

Program Support:

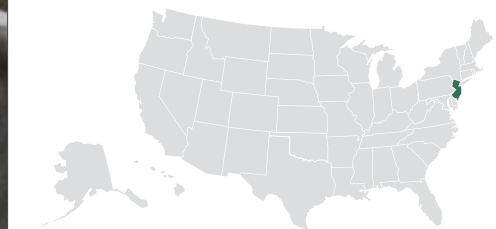
CACI (Eatontown, NJ)

Subject Matter Expert:

MITRE (Eatontown, NJ)

Broad Area Announcement (BAA):

To be determined



Joint Biological Point Detection System (JBPDS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Protects the Soldier by providing rapid and fully automated detection, identification, warning, and sample isolation of high-threat biological warfare agents.

DESCRIPTION

The Joint Biological Point Detection System (JBPDS) is the first Joint biological warfare agent (BWA) detection system designed to meet the broad spectrum of operational requirements encountered by the services, across the entire spectrum of conflict.

It consists of a common biosuite that can be integrated onto a service platform, shipboard, or trailer mounted to provide biological detection and identification to all service personnel. The JBPDS is portable and can support bare-base or semi-fixed sites. JBPDS will presumptively identify 10 BWAs simultaneously. It will also collect a liquid sample for confirmatory analysis and identification. Technology refresh efforts will focus on reducing life cycle costs and obsolescence.

JBPDS can operate from a local controller on the front of each system, remotely, or as part of a network of up to 26 systems. JBPDS meets all environmental, vibration, and shock requirements of its intended platforms, as well as requirements for reliability, availability, and maintainability.

The JBPDS includes both military and commercial global positioning, meteorological, and network modem capabilities. The system will interface with the Joint Warning and Reporting Network (JWARN).

The JBPDS is currently fielded on the Stryker Nuclear, Biological, Chemical, Reconnaissance Vehicle (NBCRV), the M31A2 Biological Integrated Detection System, and Navy Ships.

SYSTEM INTERDEPENDENCIES

In this Publication

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)–Stryker Sensor Suites

PROGRAM STATUS

- **2QFY08:** Extended low-rate initial production
- **4QFY09:** Full-rate production and full materiel release granted
- **FY10:** Continue unit fieldings

PROJECTED ACTIVITIES

- **FY11:** Continue unit fieldings
- **FY13:** Follow-on test and evaluation

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

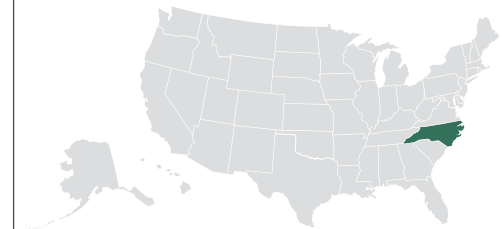
Joint Biological Point Detection System (JBPDS)

FOREIGN MILITARY SALES

None

CONTRACTORS

General Dynamics Armament and Technical Products (Charlotte, NC)



Joint Biological Standoff Detection System (JBSDS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides advanced, early-warning, standoff detection of biological warfare agents (BWA) on a stationary platform or fixed site, used in conjunction with other biological point detectors for advanced warning, reporting, and protection.

DESCRIPTION

The Joint Biological Standoff Detection System (JBSDS) will be the first biological defense detect-to-warn capability to protect individual warfighters.

The JBSDS Increment 1 provides initial early warning capability against biological warfare agent attack by detecting aerosol clouds out to five kilometers with infrared (IR) light detection and ranging (LIDAR). JBSDS Increment 1 operates at fixed sites or in a stationary mode on mobile platforms. JBSDS Increment 1 system will be used for training to support Increment 2 concept of operations development.

JBSDS Increment 2 will provide 24/7 near-real-time biological warfare agent (BWA) detection and will network with existing biological detection systems to provide early warning (detect-to-warn) theater-wide to limit the effects of biological agent hazards against U.S. forces at the tactical and operational levels of war. JBSDS Increment 2 can be employed in support of various areas (e.g., fixed sites, air ports of debarkation/sea ports of debarkation, forward operating bases, amphibious landing sites), on platforms, or stationary vehicles. JBSDS Increment 2 will pass detection information and warnings through existing and planned communications networks (e.g., Joint Warning and Reporting Network). Commanders may integrate JBSDS Increment 2 outputs with information from intelligence, meteorological, radar, medical surveillance, local area operations, and other available assets to increase force protection, mitigate the consequences of biological hazards, and maximize combat effectiveness.

SYSTEM INTERDEPENDENCIES

Single Channel Ground and Airborne Radio System (SINCGARS), Combat Service Support Automated Information Systems Interface (CAISI)

PROGRAM STATUS

- **FY09:** JBSDS Increment 2 materiel development decision approved
- **FY10:** JBSDS Increment 1 systems issued for training in support of Increment 2 development

PROJECTED ACTIVITIES

- **FY11:** JBSDS Increment 2 Milestone A decision
- **FY14:** JBSDS Increment 2 Milestone B decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Biological Standoff Detection System (JBSDS)

FOREIGN MILITARY SALES

None

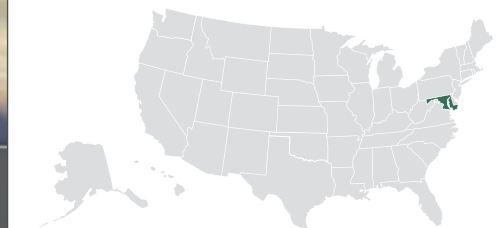
CONTRACTORS

Increment 1:

Science and Engineering Services, Inc.
(SESI) (Columbia, MD)

Increment 2:

To be determined



Joint Biological Tactical Detection System (JBTDS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a tactical, lightweight, battery-operated, biological warfare agent (BWA) system capable of detecting, warning, and presumptively identifying and collecting samples for follow-on confirmatory analysis.

DESCRIPTION

The Joint Biological Tactical Detection Systems (JBTDS) will be a lightweight, man-portable, battery-operated system that detects, warns, and provides presumptive identification and sample collection of 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 theater-wide, seamless array capable of detection and warning.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY09:** Materiel development decision approved
- **FY10:** Development of Analysis of Alternatives

PROJECTED ACTIVITIES

- **FY11:** JBTDS Milestone A decision
- **FY12:** JBTDS Milestone B decision

ACQUISITION PHASE

Technology Development

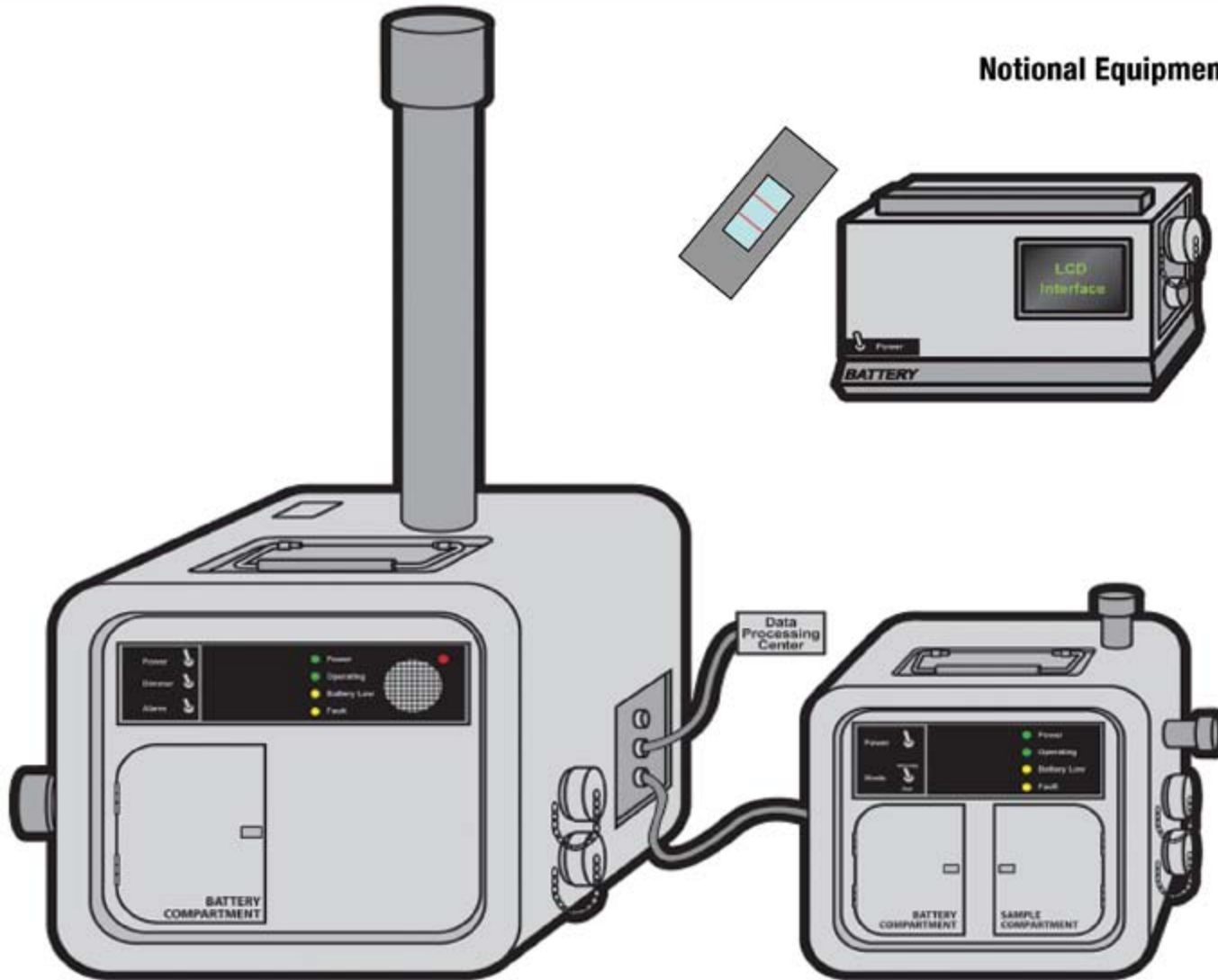
Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Biological Tactical Detection System (JBTDS)

Notional Equipment Set

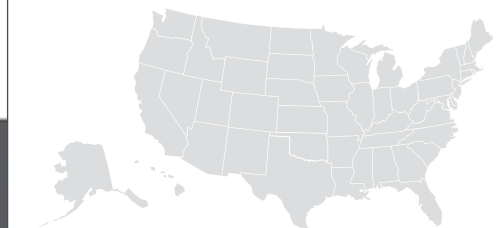


FOREIGN MILITARY SALES

None

CONTRACTORS

To be determined



Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the Combat Vehicle Crewman (CVC) with flame-resistant (FR), percutaneous protection against chemical and biological (CB) agents, radioactive particles, and toxic industrial materials.

DESCRIPTION

The Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3) is a lightweight, one-piece, flame-resistant, chemical, and biological protective coverall that resembles a standard CVC coverall. The JC3 is intended to be worn as a duty uniform; however, it may be worn as an overgarment. It will resist ignition and will provide thermal protection to allow emergency egress. The JC3 will not be degraded by exposure to petroleum, oils, and lubricants present in the operational environment. The JC3 will be compatible with current and developmental protective masks and mask accessories, headgear, gloves/mittens, footwear, and other CVC ancillary equipment (e.g., Spall vest).

SYSTEM INTERDEPENDENCIES

In this Publication

Abrams Tank Upgrade (M1A2), Bradley Fighting Vehicle Systems Upgrade, Stryker Family of Vehicles

Other Major Interdependencies

Existing and co-developmental protective masks, appropriate mask accessories, protective headwear, hand-wear, footwear, and Army and Marine Corps armored vehicles

PROGRAM STATUS

- **FY10:** Continued production and fielding
- **1QFY10:** First unit equipped

PROJECTED ACTIVITIES

- **FY11–16:** Continue production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

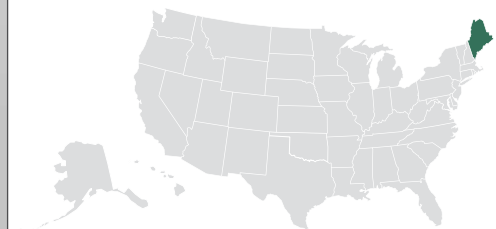
Operations & Support

Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3)**FOREIGN MILITARY SALES**

None

CONTRACTORS

Group Home Foundation, Inc. (Belfast, ME)



Joint Chemical Agent Detector (JCAD)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Protects U.S. forces by detecting, identifying, alerting, and reporting the presence of chemical warfare agent and toxic industrial chemical vapor.

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. The system can operate in a general chemical warfare environment, and can undergo conventional decontamination procedures by the warfighter.

The Enhanced JCAD (M4E1 JCAD) goes into production in FY11. The M4E1 JCAD will reduce operation and sustainment costs, has an improved user interface, and is net-ready.

The JCAD replaces the Automatic Chemical Agent Detector and Alarm (ACADA or M22), M90, and M8A1 systems. The JCAD may replace the Chemical Agent Monitor (CAM) and Improved Chemical Agent Monitor (ICAM).

Specific capabilities include:

- 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 M4E1 will be net-ready through implementation of the common chemical, biological, radiological, and nuclear standard interface

SYSTEM INTERDEPENDENCIES

High Mobility Multipurpose Wheeled Vehicle (HMMWV), Modular Lightweight Load-carrying Equipment (MOLLE), M113, M2 (Bradley)

PROGRAM STATUS

- **4QFY08:** Full-rate production and full materiel release; fielding of the M4 JCAD to the Services
- **FY10:** Customer testing of M4E1 JCAD

PROJECTED ACTIVITIES

- **FY11:** Continue fielding M4 JCAD to the services
- **FY11:** Production verification testing of M4E1 JCAD
- **FY11:** Production cut-in decision for M4E1 JCAD

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

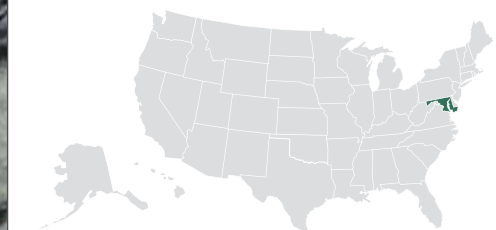
Joint Chemical Agent Detector (JCAD)

FOREIGN MILITARY SALES

None

CONTRACTORS

Smiths Detection, Inc. (Edgewood, MD)



Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Protects U.S. forces by detecting and identifying the presence of biological warfare agents and radiological contaminants in water supplies.

DESCRIPTION

The Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM) is a kit that provides a waterborne biological and radiological agent detection capability. The JCBRAWM kit is one-man portable and detects two biological toxins and radiation (alpha and beta particles) in drinking water. JCBRAWM provides the ability to detect and identify biological and radiological contamination during three water-monitoring missions: source site selection/reconnaissance, treatment verification, and quality assurance of stored and distributed product water. The system performs biological detection and identification functions with an immunoassay ticket and radiological detection using the fielded AN/PDR-77 (RADIAC) system and accessory package.

JCBRAWM leverages commercial technologies and fielded systems. JCBRAWM supplements the currently fielded M272 water-testing kit.

The system is being fielded to the Army and Navy.

SYSTEM INTERDEPENDENCIES

AN/PDR-77

PROGRAM STATUS

- **FY09:** Full-rate production; full materiel release
- **FY10:** Fielding to the services

PROJECTED ACTIVITIES

- **FY11:** Completion of fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

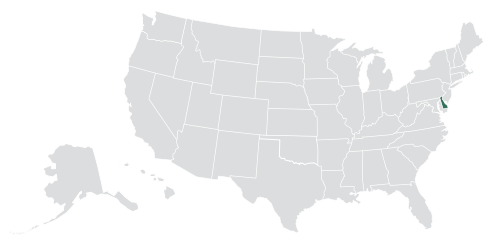
**Joint Chemical Biological
Radiological Agent Water Monitor
(JCBRAWM)**

FOREIGN MILITARY SALES

None

CONTRACTORS

ANP Technologies (Newark, DE)



Joint Effects Model (JEM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides enhanced operational and tactical-level situational awareness of the battlespace and provides real-time hazard information during and after an incident to influence and minimize effects on current operations.

DESCRIPTION

Joint Effects Model (JEM) is an Acquisition Category III software program. It is the only accredited DoD computer-based tactical and operational hazard prediction model capable of providing common representation of chemical, biological, radiological, nuclear (CBRN) and toxic industrial chemicals/toxic industrial material (TIC/TIM) hazard areas and effects. It may be used in two variants: as either a standalone system, or as a resident application on host command, control, communications, computers, and intelligence (C4I) systems. It is capable of modeling hazards in various scenarios, including counterforce, passive defense, accidents, incidents, high-altitude releases, urban environments, building interiors, and human performance degradation.

JEM will follow an evolutionary acquisition approach. The JEM program will deliver a full-capability system in three increments, each retaining the functionality of the preceding increment(s). JEM will also support planning to mitigate the effects of weapons of mass destruction.

Chemical staff sections at the battalion, brigade, division, corps and echelons-above-corps levels, as well as Special Forces chemical recon detachments, will use JEM. Brigade, division, and corps-level CBRN staff planners will also have a reconnaissance version of JEM.

SYSTEM INTERDEPENDENCIES

In this Publication

Global Command and Control System–Army (GCCS-A), Joint Warning and Reporting Network (JWARN)

Other Major Interdependencies

Battle Command Common Services (BCCS), Command Post of the Future (CPOF), Maneuver Control System (MCS)

PROGRAM STATUS

- **3QFY10:** JEM 1.0 full deployment decision (GCCS-A, GCCS-J, C2PC, JWARN)
- **4QFY10:** JEM 1.0 production and deployment

PROJECTED ACTIVITIES

- **FY11:** Continue production and deployment
- **FY11-12:** Continue JEM 2.0 software development and testing

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

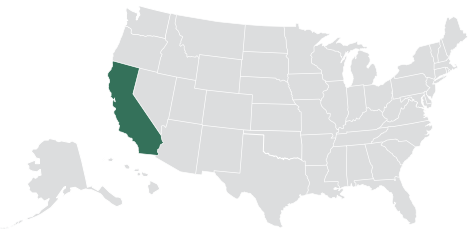
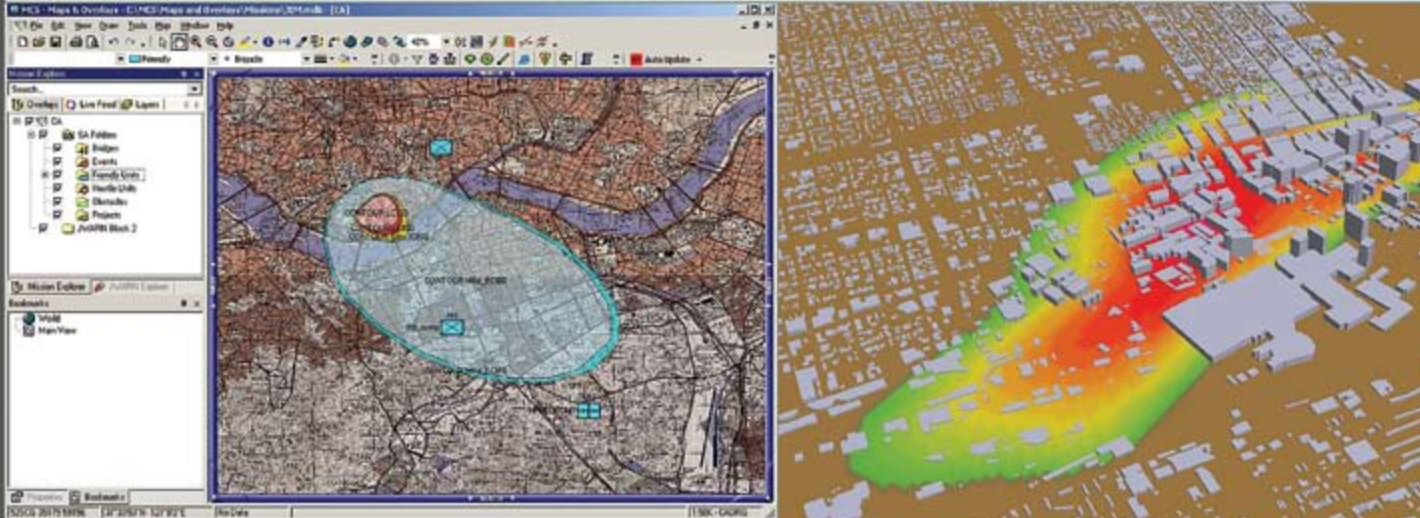
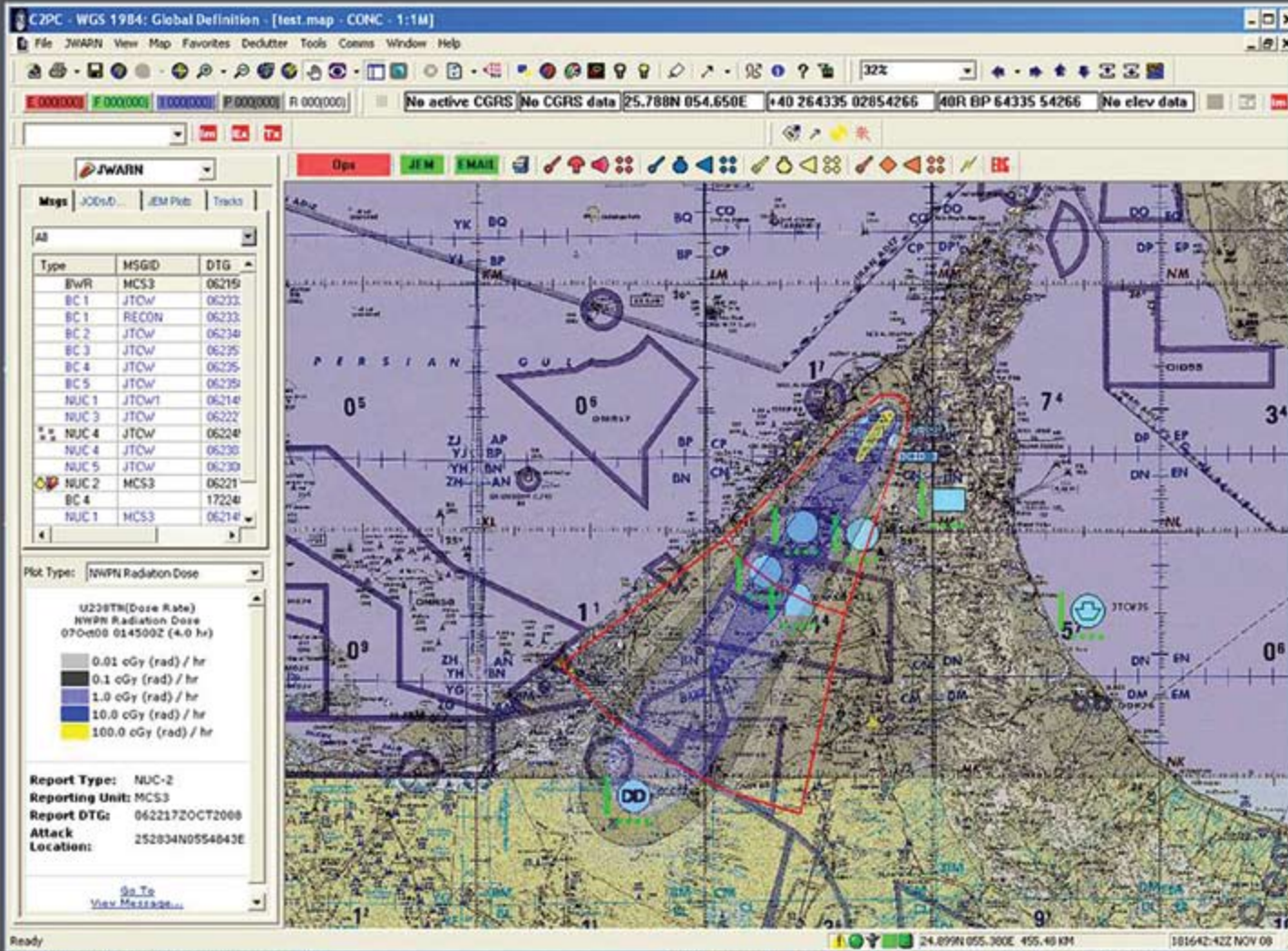
Joint Effects Model (JEM)

FOREIGN MILITARY SALES

None

CONTRACTORS

Northrop Grumman Mission Systems
(San Diego, CA)



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

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides significantly improved capability to precisely and accurately engage targets in a variety of situations.

DESCRIPTION

The Joint Effects Targeting System (JETS) is a future system that will answer the need for a very light weight, highly accurate targeting system that will allow target engagements with precision munitions (e.g., Joint Direct Attack Munition [JDAM], Excalibur and laser-guided weapons) and provide crucial digital connectivity to request and control indirect fires and close air support from all Joint assets. The JETS' lighter weight will allow small units supported by U.S. Air Force Tactical Air Control Parties, Joint Terminal Attack Controllers (JTACs), and forward observers to have access to precision targeting even in rugged mountainous terrain.

JETS will reduce friendly fire and collateral damage by improving the ability of Soldiers to differentiate between enemy combatants and non-combatants, and to accurately and reliably locate targets while

communicating with Blue Force tracking systems and overhead surveillance assets to improve situational awareness. JETS is composed of two major increments: the Target Location Designation System (TLDS) and the Target Effects Coordination System (TECS).

The TLDS will provide the dismounted observer and JTAC with a common enhanced lightweight hand-held capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets. The TECS will provide a networked, automated communications capability to plan, coordinate, and deliver fire support, as well as provide terminal close air support guidance.

SYSTEM INTERDEPENDENCIES

U.S. Army Portable Forward Entry Device, U.S. Air Force Tactical Air Control Party-Close Air Support System, U.S. Marine Corps StrikeLink, future TECS

PROGRAM STATUS

- **FY08:** Analysis of alternatives approved by Joint Studies Advisory Group
- **FY09:** Request for information released to support market research
- **FY10:** Materiel development decision
- **FY10:** Entered technology development phase

PROJECTED ACTIVITIES

- **FY13:** Enter engineering and manufacturing development phase
- **FY16:** Initial operational capability

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

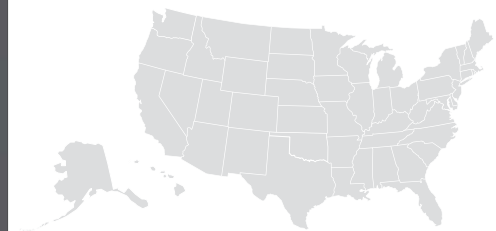
**Joint Effects Targeting System
(JETS) Target Location Designation
System (TLDS)**

FOREIGN MILITARY SALES

None

CONTRACTORS

To Be Determined



Joint High Speed Vessel (JHSV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides high-speed, intra-theater transport of Soldiers, military vehicles, equipment, and cargo.

DESCRIPTION

The Joint High Speed Vessel (JHSV) is a 103-meter (338 foot), high-speed, shallow-draft catamaran capable of transporting 700 short tons for 1,200 nautical miles at an average speed of 35 knots. The JHSV is capable of interfacing with roll-on/roll-off discharge facilities, and on/off-loading a combat-loaded M1A2 Abrams Tank. JHSV has an aviation flight deck to support day and night air vehicle launch and recovery operations. The JHSV also has seating for more than 300 embarked Soldiers and fixed berthing for approximately 100 more.

The JHSV represents the next generation of Army watercraft to support the Army's doctrinal intra-theater lift mission. The JHSV provides flexibility and agility within a theater, enabling the Joint force commander to insert combat power and sustainment into austere ports worldwide. The JHSV bridges the gap between low-speed sealift and high-speed airlift.

Supporting Army prepositioned stocks and Joint logistics over-the-shore, the JHSV expands the reach and possibilities of prepositioning both on land and afloat. The JHSV provides the capability to conduct operational maneuver and repositioning of intact unit sets. This affords the combatant commander increased throughput, survivability, and responsiveness, and improved closure rates. This transport transformation-enabler helps achieve force deployment goals and full distribution-based logistics. The JHSV offers the Joint force commander a multi-modal and multipurpose platform to support Joint operations that complements airlift capabilities, thereby minimizing the need for large-scale reception, staging, onward movement, and integration of Soldiers, vehicles, and equipment within the battlespace.

JHSV features:

- Flight deck
- Joint interoperable, command, control, communications, computers, intelligence, surveillance, and reconnaissance
- Underway refueling
- Electronic navigation

- Anti-terrorism/force protection capabilities
- Commercially available technology

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY09:** Defense Acquisition Board Milestone B
- **1QFY09:** Contract award for detail design and construction for one JHSV
- **1QFY10:** Defense Acquisition Board program review
- **2QFY10:** Contract award for detail design and construction for one JHSV
- **4QFY10:** Contract award for detail design and construction for one JHSV

PROJECTED ACTIVITIES

- **FY12–16:** Delivery/post acceptance trails for five JHSVs

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint High Speed Vessel (JHSV)

FOREIGN MILITARY SALES

None

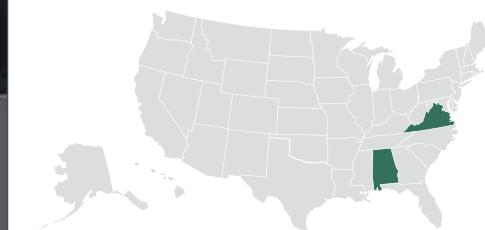
CONTRACTORS

Detail Design and Construction:

Austal USA (Mobile, AL)

Electronic Systems:

General Dynamics Advanced Information
Systems (Fairfax, VA)



Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides elevated, persistent, over-the-horizon detection, tracking, classification, and engagement data of cruise missiles, aircraft, unmanned aerial vehicles, tactical ballistic missiles, large caliber rockets, and surface-moving targets, enabling rapid defensive engagement by air-directed, surface-to-air, or air-to-air missile systems.

DESCRIPTION

The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) orbit comprises two systems: a fire control radar system and a wide-area surveillance radar system. Each system has a 74-meter tethered aerostat, a mobile mooring station, radar, communications payload, processing station, and associated ground support equipment. The JLENS

mission is achieved by both the fire control radar and the surveillance radar systems operating as an “orbit;” however, each system can operate autonomously and contribute to the JLENS mission.

JLENS uses its advanced sensor and networking technologies to provide 360-degree wide-area surveillance and tracking of cruise missiles and other aircraft. Operating as an orbit, the surveillance radar generates information that enables the fire control radar to readily search for, detect, and track low-altitude cruise missiles and other airborne threats. Once the fire control radar develops tracks, this information is provided to tactical data networks so other network participants can assess threat significance and assign systems to counter the threat. The fire control data supports extended engagement ranges by other network participants by providing high-quality track data on targets that may be terrain-masked from surface-based radar systems. JLENS information is distributed

via the Joint service networks and contributes to the development of a single, integrated air picture.

JLENS also performs as a multirole platform, enabling extended range communication and control linkages, communications relay, battlefield situational awareness, and can be configured to detect and track surface moving targets. JLENS can stay aloft up to 30 days, providing 24-hour radar coverage of the assigned areas. The radar systems can be transported by aircraft, railway, ship, or roadway.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Tactical Radio System Multifunctional Information Distribution System (MIDS), Medium Extended Air Defense System (MEADS), Patriot Advanced Capability–Three (PAC-3), Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM), Warfighter Information Network–Tactical (WIN-T) Increment 1, WIN-T Increment 2, WIN-T Increment 3

Other Major Interdependencies

The JLENS System is dependent on capabilities provided by CEC, MIDS, Integrated Broadcast System (IBS). The JLENS program is interdependent with PAC-3, SLAMRAAM, MEADS, and Navy Integrated Fire Control–Counter Air (NIFC-CA).

PROGRAM STATUS

- **2QFY08:** Orbit preliminary design review
- **1QFY09:** Orbit critical design review
- **4QFY09:** Platform first flight
- **4QFY10:** Orbit 1 system integration begins

PROJECTED ACTIVITIES

- **2QFY11:** Orbit 1 integration complete
- **1QFY12:** Limited user test
- **2QFY12:** NIFC-CA demonstration
- **2QFY12:** Milestone C decision
- **3QFY13:** Operational test

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Radar and Systems Engineering:

Raytheon (Andover, MA)

Surv. Radar:

Raytheon (El Segundo, CA)

Platform:

TCOM (Columbia, MD; Elizabeth City, NC)

SETA Support:

SETA (Huntsville, AL)

Engineering and Technical Support:

E&TS Ktrs (Huntsville, AL)

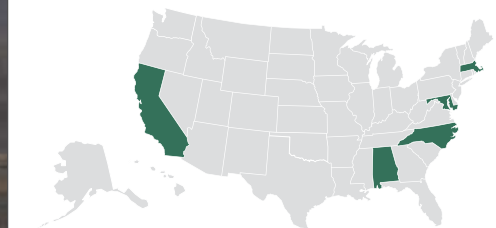
Software:

Raytheon Solipsys (Fulton, MD)

Software Engineering:

Northrop Grumman (Huntsville, AL)

JLENS KPPs:	Objective	Threshold
Combat ID:	Yes	Yes
SIAP:	360°	100°
IFC:	SLAMRAAM / PAC 3 / SM	SLAMRAAM / PAC 3
Net-Ready:	Meet all top-level IERS	Meet critical top-level IERS



Joint Land Component Constructive Training Capability (JLCCTC)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides unit commanders and their staffs the capability to train in a simulation-based environment with accurate representations of land warfare operations.

DESCRIPTION

The Joint Land Component Constructive Training Capability (JLCCTC) is a software modeling and simulation capability that contributes to the Joint training functional concept and the Army training mission area by providing appropriate levels of model and simulation resolution and fidelity to support unit collective and combined arms training. JLCCTC provides multiple federations configurable to any combination of models and simulations. The training system meets standards for net-centric operations and key interface terrain databases to support common operating environment and will interoperate within a live, virtual, and constructive integrated architecture.

The JLCCTC is composed of two separate federations: JLCCTC–Multi-Resolution Federation (MRF), and JLCCTC–Entity Resolution Federation (ERF). The MRF is a federated set of constructive simulation software supported by commercial software and commercial off-the-shelf hardware that will support training of commanders and their staffs in maneuver, logistics, intelligence, air defense, and artillery. The federate models are connected by a combination of standard High-Level Architecture, Run-Time Infrastructure, Distributed Interactive Simulation, custom interfaces, Master Interface and Point-to-Point.

The JLCCTC-MRF is a Command Post Exercise driver designed to train Army commanders and their staffs at division through echelons-above-corps. It provides a simulated operational environment in which computer-generated forces simulate and respond to the command and control processes of the commanders and staffs. The JLCCTC provides an interface to Army Battle Command System (ABCS) equipment, allowing commanders and their staffs to train with their “go-to-war” systems.

JLCCTC-ERF is a federation of simulations, simulation command, control, communications, computers, and intelligence (C4I) interfaces, data collection, and after action review tools. It simulates the ABCS to facilitate battle staff collective training by requiring staff reaction to incoming digital information while executing the commander’s tactical plan. Battle staffs of higher echelons may also employ JLCCTC-ERF to achieve specific training objectives.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY10:** JLCCTC-MRF-W v5.5 U.S. Army 2nd Infantry Division’s (2ID) WARPAT and WFX exercises with Korea
- **2QFY10:** JLCCTC-MRF-W v5.5.1 accredited by CAC Commander
- **2QFY10:** JLCCTC-ERF v5.2.1 fielding to Camp Dodge National Guard brigade
- **3QFY10:** JLCCTC-MRF-W v5.5.2 installed at BCTP, Ft. Leavenworth, KS
- **3QFY10:** JLCCTC-ERF v5.2.1 fielding to Ft. Sill, Ft. Sam Houston, and ARCENT
- **1–4QFY10:** JLCCTC-ERF v5.3 IT&E

- **3QFY10–4QFY10:** JLCCTC-MRF-W v6.0 development, integration, and test events (IE #1 & IE #2)
- **4QFY10:** JLCCTC ERF v5.3 VE/ORE

PROJECTED ACTIVITIES

- **1QFY11:** JLCCTC-ERF v5.3 fielding to Ft. Bragg and Ft. Indiantown Gap
- **1QFY11:** JLCCTC-MRF-W v6.0 integration and test event (IE #3)
- **2QFY11:** JLCCTC-MRF-W v6.0 integration and test event (IE #4)
- **2QFY11:** JLCCTC-MRF-W v6.0 verification event and operational readiness event
- **2QFY11:** JLCCTC-ERF v5.3 fielding to Camp Sagami and Schofield Barracks
- **3QFY11:** JLCCTC-ERF v5.3 fielding to Ft. Lewis and 7th ATC Grafenwoehr; JLCCTC-MRF-W v6.0 35th ID exercise with BCTP, Ft. Leavenworth, KS; JLCCTC-MRF-W v6.0 fielding to KBSC
- **4QFY11:** JLCCTC-MRF-W v6.1 software release; JLCCTC-ERF v5.3 fielding to KBSC
- **1QFY12:** JLCCTC-MRF-W v6.1 integration event in preparations for YS61 exercise; JLCCTC-MRF-W v6.1 U.S. Army 2nd Infantry Division’s (2ID) WARPAT and WFX exercises with Korea
- **2QFY12:** JLCCTC-MRF-W v6.1 YS61

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Land Component Constructive Training Capability (JLCCTC)

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime:

General Dynamics (Fairfax, VA)
 Lockheed Martin (Orlando, FL)
 Tapestry (San Diego, CA)
 Booz Allen Hamilton (McLean, VA)

CTS:

General Dynamics (Fairfax, VA)

WARSIM:

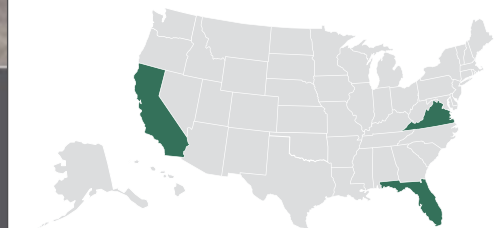
Lockheed Martin (Orlando, FL)

Logistics Federate:

Tapestry (San Diego, CA)

AARS/ISM/RTM:

Booz Allen Hamilton (McLean, VA)



Joint Light Tactical Vehicle (JLTV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a family of vehicles, with companion trailers, capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations.

DESCRIPTION

The Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV) is a Joint service and international program that will be capable of operating across a broad spectrum of terrain and weather conditions. The Joint services require enhanced performance, exceeding the existing High Mobility Multipurpose Wheeled Vehicle, supporting the Joint Functional Concepts of Battlespace Awareness, Force Application, and Focused Logistics. 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 operations across the spectrum of terrain, including urban areas, while providing

inherent and supplemental armor against direct fire and improvised explosive device threats.

Payloads: Category A–3,500 pounds, Category B–4,500 pounds, Category C–5,100 pounds

Transportability: Internal–C-130, External–CH-47/53, Sea–Height-restricted decks

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: Connectivity for improved battlespace awareness and responsive, well-integrated command and control for embarked forces.

Sustainability: Reliable, maintainable, maximum commonality across mission role variants, onboard and exportable power, and reduced fuel consumption.

The JLTV FoV balances the “Iron Triangle” of payload, protection, and performance.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY09:** Awarded three technology development contracts
- **2QFY09:** Start of work meetings
- **4QFY09:** Preliminary design reviews
- **1QFY10:** Critical design review
- **3QFY10:** Test readiness review
- **3QFY10:** Mid-point review with milestone decision authority

PROJECTED ACTIVITIES

- **3QFY11:** Capability Development Document approved
- **4QFY11:** Milestone B, enter engineering and manufacturing development (EMD)
- **1QFY12:** Award two EMD contracts

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



TECHNOLOGY
DEVELOPMENT PHASE
DEMONSTRATOR MODELS

Joint Light Tactical Vehicle (JLTV)

BAE Systems Land
and Armaments

FOREIGN MILITARY SALES

None

CONTRACTORS

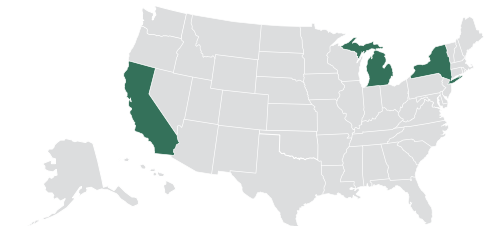
BAE Systems Land and Armaments
(Santa Clara, CA)
General Tactical Vehicle
(Sterling Heights, MI)
Lockheed Martin (Oswego, NY)



General Tactical Vehicles



Lockheed Martin
Systems Integration



Joint Personnel Identification Version 2 (JPIv2)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides tactical biometrics collection capability configurable for multiple operational mission environments, enabling identity superiority.

DESCRIPTION

Joint Personnel Identification version 2 (JPIv2) will collect, match, store, and share biometrics (fingerprint/face/iris) data and contextual information from actual or potential adversaries, host-nation personnel, and third-country nationals. This system was formerly known as Biometric Family of Capabilities for Full Spectrum Operations (BFCFSO).

SYSTEM INTERDEPENDENCIES

In this Publication

Biometric Enabling Capability (BEC), Distributed Common Ground System–Army (DCGS-A)

Other Major Interdependencies

Identity Dominance System (IDS)

PROGRAM STATUS

- **4QFY08:** DoD Biometrics Acquisition Decision Memorandum (ADM) directs Milestone B no later than FY10
- **1QFY09:** Biometrics in support of Identity Management Initial Capabilities document approved by Joint Requirements Oversight Council
- **4QFY09:** DoD Biometrics ADM directs the analysis of alternatives to be completed 2QFY10
- **3QFY10:** DoD Biometrics ADM approved name change from Biometric Family of Capabilities for Full Spectrum Operations (BFCFSO) to Joint Personnel Identification Version 2 (JPIv2)
- **4QFY10:** DoD Biometrics ADM approves Biometric analysis of alternatives final report and directs Milestone B for JPIv2 in FY12

PROJECTED ACTIVITIES

- **2QFY11:** JPIv2 1 Capability development document approved
- **3QFY12:** Milestone B, permission to enter system development and demonstration

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Personnel Identification Version 2 (JPIv2)

FOREIGN MILITARY SALES

None

CONTRACTORS

Program Management Support

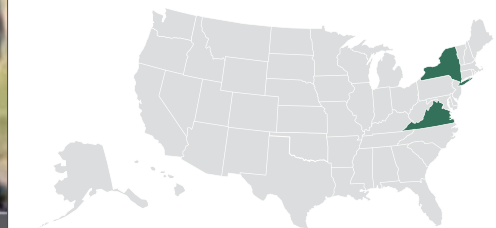
Services:

CACI (Arlington, VA)

The Research Associates (New York, NY)

System Development and Integration:

To be determined pending Milestone B



Joint Precision Airdrop System (JPADS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the warfighter with precision airdrop capability, ensuring an accurate delivery of supplies to forward-operating forces, reducing vehicular convoys, and allowing aircraft to drop cargo at safer altitudes and off-set distances.

DESCRIPTION

The Joint Precision Airdrop System (JPADS) is a precision-guided airdrop system that 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 is being developed in two weight classes: 2,000 pounds and 10,000 pounds, with potential future requirements

for 30,000 pounds, and an objective system of 60,000 pounds. The guidance system uses military global positioning satellite data for precise navigation and interfaces with a wirelessly updatable mission planning module on board the aircraft to receive real-time weather data and compute multiple aerial release points.

JPADS is being designed for aircraft to drop cargo from altitudes of up to 24,500 feet mean sea level. It will release cargo from a minimum off-set of eight kilometers from the intended point of impact, with an objective capability of 25 kilometers 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.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY07–4QFY08:** Testing for 2,000-pound variant completed
- **1QFY08:** Milestone B (permission to enter system development and demonstration phase) received for 10,000-pound variant
- **2QFY08:** Testing began for 10,000-pound variant and currently in developmental testing
- **3QFY09:** Milestone C, Type Classification-Standard, and full materiel release approved for the 2,000-pound variant, with production contract
- **4QFY09:** Fielding began for 2,000-pound variant and will continue until FY12, assuming projected funding remains

PROJECTED ACTIVITIES

- **1QFY11:** Complete testing of the 10,000-pound variant
- **4QFY11:** Milestone C (full-rate production and fielding decision) for 10,000-pound variant with subsequent award production contract
- **1QFY12:** Fielding begins for 10,000-pound variant

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Airborne Guidance Unit (AGU)



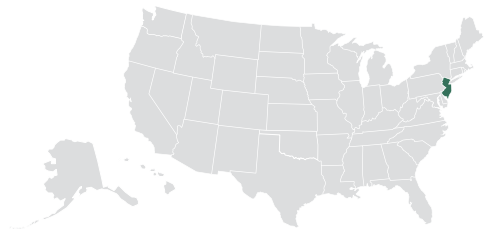
Joint Precision Airdrop System (JPADS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Airborne Systems North America
(Pennsauken, NJ)



Joint Service General Purpose Mask (JSGPM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables warfighters' survival in a chemical, biological, radiological, and nuclear (CBRN) environment by providing chemical, biological, toxin, radioactive particulate, and toxic industrial material protection.

DESCRIPTION

The Joint Service General Purpose Mask (JSGPM) is a lightweight, protective mask system incorporating state-of-the-art technology to protect U.S. Joint forces from actual or anticipated threats. The JSGPM will provide above-the-neck, head-eye-respiratory protection against CBRN threats, including toxic industrial chemicals (TIC). The mask component designs will be optimized to minimize their impact on the wearer's performance and to maximize its ability to interface with current and future service equipment and protective clothing. The JSGPM mask system replaces the M40/M42 series of protective masks for the Army and Marine Corps ground and combat vehicle operations, as well as the

MCU-2/P series of protective masks for Air Force and Navy shore-based and shipboard applications.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3)

Other Major Interdependencies

The JSGPM will interface with Joint service vehicles, weapons, communication systems, individual clothing and protective equipment, and CBRN personal protective equipment

PROGRAM STATUS

- **FY10:** Production and fielding

PROJECTED ACTIVITIES

- **FY11–16:** Continue production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Service General Purpose Mask (JSGPM)

FOREIGN MILITARY SALES

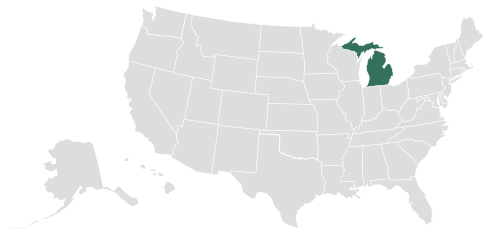
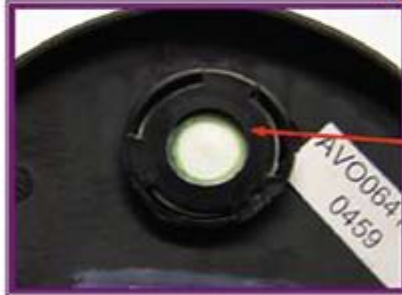
None

CONTRACTORS

Avon Protection Systems (Cadillac, MI)



- Head Harness**
- Polynomial Spline Eyelens**
- Facepiece Assembly**
(Chlorobutyl/ Silicone Base
(5%) Blend)
- Front Module Assembly**
- Primary Filter**
- Drink Tube Coupler and Housing**
- Filter Time Patch to assess filter life**



Joint Service Transportable Decontamination System (JSTDS)–Small Scale (SS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports rapid and effective decontamination of military equipment.

DESCRIPTION

The Joint Service Transportable Decontamination System–Small Scale (JSTDS-SS) will enable warfighters to conduct thorough decontamination of non-sensitive military materiel and limited facility decontamination at logistics bases, airfields (and critical airfield assets), naval ships, ports, key command and control centers, and other fixed facilities that have been exposed to chemical, biological, radiological, and nuclear (CBRN) warfare agents/contamination and toxic industrial materials. The system may also support other hazard abatement missions as necessary. The JSTDS-SS is supported with one accessory kit and one water blivet per system.

The JSTDS-SS is being developed using an incremental approach. Increment I provides improved capabilities over current systems to decontaminate tactical and non-tactical vehicles, ship exterior surfaces, aircraft,

crew served weapons, and aircraft support equipment. Increment II will focus on improving overarching decontamination processes, efficacy, and system capabilities for operational and thorough decontamination of non-sensitive equipment.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

All individual protective equipment, decontaminants, and detectors

PROGRAM STATUS

- **3QFY10:** Full-rate production decision
- **4QFY10:** Production and fielding

PROJECTED ACTIVITIES

- **FY11–16:** Continue production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

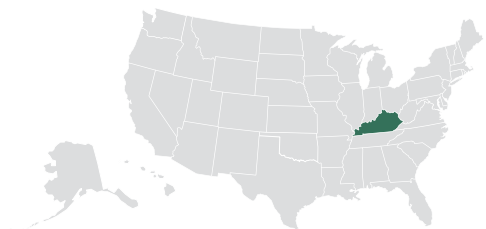
**Joint Service Transportable
Decontamination System (JSTDS)–
Small Scale (SS)**

FOREIGN MILITARY SALES

None

CONTRACTORS

DRS Technologies (Florence, KY)



Joint Tactical Ground Stations (JTAGS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Disseminates early-warning, alerting, and cueing information of ballistic missile attack and other infrared events to theater combatant commanders by using real-time, direct down-linked satellite data.

DESCRIPTION

Joint Tactical Ground Stations (JTAGS) are forward-deployed, echelon-above-corps, transportable systems designed to receive, process, and disseminate direct down-linked infrared data from space-based sensors. Ongoing product improvement efforts will integrate JTAGS with the next-generation Space Based Infrared System (SBIRS) satellites. SBIRS sensors will significantly improve theater missile warning parameters. Expected improvements include higher quality cueing of active defense systems, decreased missile launch search area, faster initial report times, and improved impact ellipse prediction.

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. Five JTAGS are deployed worldwide as part of the U.S. Strategic Command's Tactical Event System. The Army Space and Missile Defense Command Soldiers operate JTAGS, providing 24/7/365 support to theater operations.

SYSTEM INTERDEPENDENCIES

In this Publication

Integrated Air and Missile Defense (IAMD)

Other Major Interdependencies

U.S. Air Force's ACAT I, SBIRS satellite program.

PROGRAM STATUS

- **1QFY09–4QFY09:** Worldwide fielding of JTAGS upgrades: Common Data Link Interface, Joint Tactical Terminal, Multifunctional Information Distribution System, and information assurance improvements; upgrades to all five JTAGS units and the JTAGS development lab

PROJECTED ACTIVITIES

- **4QFY09–4QFY11:** Field JTAGS block upgrades including: communication systems, information assurance, antennas, on-orbit SBIRS satellite sensor (highly elliptical orbit), Initial SBIRS Geosynchronous Orbit (GEO) satellite capability, software support, contractor logistics support, and depot operations continue
- **2QFY11:** Initial SBIRS GEO testing begins to demonstrate capabilities
- **4QFY12:** Initial SBIRS GEO certification at an operational site

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Tactical Ground Stations (JTAGS)

FOREIGN MILITARY SALES

None

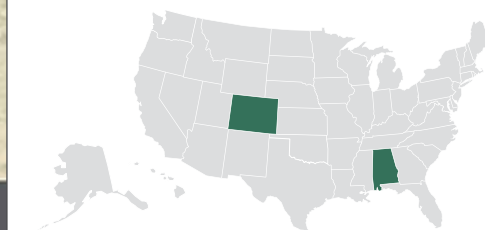
CONTRACTORS

Develop, Deploy, Sustain (CLS):

Northrop Grumman Electronic Systems
(Colorado Springs, CO)

SETA support:

BAE Systems (Huntsville, AL)



Joint Tactical Radio System Airborne and Maritime/ Fixed Station (JTRS AMF)

INVESTMENT COMPONENT

Modernization
Recapitalization
Maintenance

MISSION

Provides scalable and modular networked radio frequency-installed communication capability to meet Joint service requirements through two Joint tactical radio sets with common ancillary equipment for both radio form factors and aircraft, as well as maritime and shore sites.

DESCRIPTION

The Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF) will provide a four-channel, full duplex, software-defined radio integrated into airborne, shipboard, and fixed-station platforms, enabling maritime and airborne forces to communicate seamlessly and with greater efficiency through implementation of five initial waveforms (i.e., Ultra-High Frequency Satellite Communications, Mobile User Objective System, Wideband Network Waveform, Soldier Radio Waveform, and Link 16) providing data, voice, and networking capabilities. JTRS AMF is software-reprogrammable, multi-band/multi-mode capable, mobile ad-hoc network capable, and provides

simultaneous voice, data, and video communications. The system is flexible enough to provide point-to-point and netted voice and data, whether it is between Service Command Centers, Shipboard Command Centers, Joint Operations Centers or other functional centers (e.g., intelligence, logistics).

AMF will assist U.S. Armed Forces in the conduct of prompt, sustained, and synchronized operations, allowing warfighters the freedom to achieve information dominance in all domains—land, sea, air, and space.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Tactical Radio System Ground Mobile Radios (JTRS GMR); Joint Tactical Radio System Handheld, Manpack, Small Form Fit (JTRS HMS); Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

Other Major Interdependencies

Multiple aircraft, maritime, and fixed site platforms

PROGRAM STATUS

- **1QFY10:** Critical design review

PROJECTED ACTIVITIES

- **2QFY11:** Delivery begins for AMF Small Airborne engineering development models (EDM)
- **1QFY12:** Delivery begins for M/F EDM

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

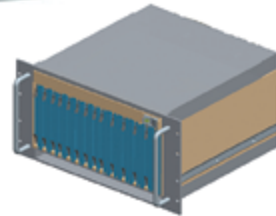
**Joint Tactical Radio System
Airborne and Maritime/Fixed Station
(JTRS AMF)**

Airborne and Maritime/Fixed Station

Increment 1 JTR Sets



Small Airborne (SA)



Maritime / Fixed Station (M/F)



FOREIGN MILITARY SALES

None

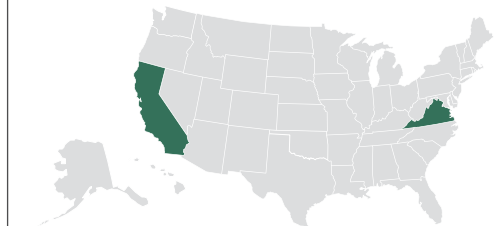
CONTRACTORS

Prime:

Lockheed Martin (San Diego, CA;
Alexandria, VA)

Subcontractors:

BAE Systems (Wayne, NJ)
Northrop Grumman (San Diego, CA)
General Dynamics C4 Systems, Inc.
(Scottsdale, AZ)
Raytheon (Fort Wayne, IN)



Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Develops, demonstrates, certifies, fields, and sustains an affordable, multi-channel networking radio system that meets DoD ground vehicle digitization and tactical communication requirements.

DESCRIPTION

Joint Tactical Radio System Ground Mobile Radios (JTRS GMR) are a key enabler of the DoD and Army Transformation and will provide critical communications capabilities across the full spectrum of Joint operations.

Through software reconfiguration, JTRS GMR can emulate current force radios and operate new Internet protocol-based networking waveforms offering increased data throughput utilizing self-forming, self-healing, and managed communication networks. The GMR route and retransmit functionality links various waveforms in different frequency bands to form one internetwork. GMR can scale from one to four channels supporting multiple security levels and effectively

use the frequency spectrum within the two megahertz to two gigahertz frequency range. The radios are Software Communications Architecture compliant with increased bandwidth through future waveforms. GMR are interoperable with more than four legacy radio systems and the JTRS family of radios (HMS, JEM, and AMF).

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF); Joint Tactical Radio System Handheld, Manpack, Small Form Fit (JTRS HMS); Single Channel Ground and Airborne Radio System (SINCGARS)

Other Major Interdependencies

Enhanced Position Locating Reporting System (EPLRS), High Frequency (HF), Network Enterprise Domain (NED), Satellite Communications (SATCOM), Soldier Radio Waveform (SRW), Ultra-High Frequency (UHF), Wideband Networking Waveform (WNW)

PROGRAM STATUS

- **2QFY09:** Engineering development model (EDM) radio deliveries began; test readiness review
- **3QFY09:** EDM production and deliveries completed; production qualification test began; security verification tests began
- **3QFY10:** System integration test began; security verification test concluded; production qualification test concluded; NSA approval to enter limited user test

PROJECTED ACTIVITIES

- **1QFY11:** Limited user test
- **2QFY11:** Conclude Milestone C decision approving entry into the production and deployment phase

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime:

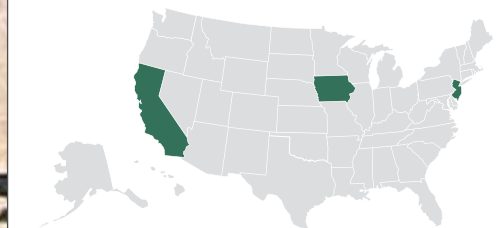
Boeing (Huntington Beach, CA)

Hardware:

BAE Systems (Wayne, NJ)

Rockwell Collins (Cedar Rapids, IA)

Northrop Grumman (Carson, CA)



Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the warfighter with a software re-programmable, networkable multi-mode system-of-systems capable of simultaneous voice, data, and video communications and meets the radio requirements for Soldiers and small platforms, such as missiles and ground sensors.

DESCRIPTION

The Joint Tactical Radio System (JTRS) Handheld, Manpack, and Small Form Fit (HMS) is a materiel solution meeting the requirements of the Office of the Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer for a Software Communications Architecture (SCA) compliant hardware system hosting SCA-compliant software waveforms (applications). HMS is an Acquisition Category ID program that encompasses specific requirements to support Special Operations Command, Army, Marine Corps, Air Force, and Navy communication needs.

The Embedded Small Form Fit versions of HMS will be used for Joint Service Ground Sensor Networks, intelligent munitions deployment and usage, unmanned vehicles, and other platform applications, including support for the Early-Infantry Brigade Combat Team and Ground Soldier System technical performance and integration.

SYSTEM INTERDEPENDENCIES

In this Publication

Single Channel Ground and Airborne Radio System (SINCGARS); Nett Warrior (NW)

Other Major Interdependencies

SRW, HF, UHF SATCOM, MUOS, IMS; UGS using SRW and various legacy WF mixes

PROGRAM STATUS

- 3QFY09: Phase 1 limited user test (LUT)

PROJECTED ACTIVITIES

- 3QFY11: Phase 2 LUT
- 1QFY12: Phase 2 Milestone C decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)

FOREIGN MILITARY SALES

None

CONTRACTORS

MP, 2 CH HH, SFFs -A, -B, -K, AN/PRC-154 (Rifleman Radio):

General Dynamics (Scottsdale, AZ)

2 CH HH, SFF-B, AN/PRC-154 (Rifleman Radio):

Thales (Clarksburg, MD)

SFF-A, -D, -K:

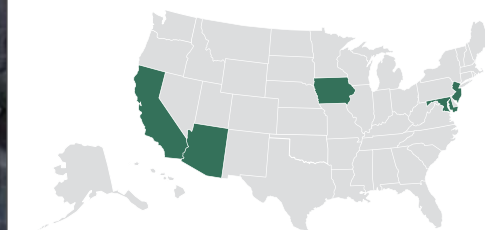
BAE Systems (Wayne, NJ)

MP, SFF-D:

Rockwell Collins (Cedar Rapids, IA)

PM Support:

Science Applications International Corp.
(SAIC) (San Diego, CA)



Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides real-time information and situational awareness to the Joint and coalition warfighter in the airborne, ground, and maritime domains through secure, scalable, modular, wireless, and jam-resistant digital data and voice communications.

DESCRIPTION

The Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS) is a secure, scalable, modular, wireless, and jam-resistant digital information system currently providing Tactical Air Navigation (TACAN), Link-16, and J-Voice to airborne, ground, and maritime joint and coalition warfighting platforms. MIDS provides real-time and low-cost information and situational awareness. The MIDS

Program includes the MIDS–Low Volume Terminal (MIDS-LVT) and the MIDS JTRS Terminal.

MIDS-LVT is the foundation of the MIDS international cooperative program with Joint service participation. MIDS-LVT provides interoperability with NATO users, significantly increasing force effectiveness and minimizing hostile actions and friend-on-friend engagements. Three principal configurations of the terminal are in production and use an open-system, modular architecture. MIDS-LVT(1) provides a Link-16 capability to Navy and Air Force platforms, which were previously unable to use the Joint Tactical Information Distribution System (JTIDS) due to space and weight limitations. MIDS-LVT(2) is an Army variant of MIDS that is a functional replacement for the JTIDS Class 2M terminal. MIDS-LVT(3), also referred to as MIDS Fighter Data Link (FDL), is a reduced-function terminal for the Air Force.

MIDS JTRS is a Software Defined Radio (SDR) that is compliant with the JTRS Software Communications Architecture (SCA). MIDS JTRS maintains the Link-16, J-Voice, and TACAN functionality of

MIDS-LVT, but also accommodates future technologies and capabilities. MIDS JTRS improvements over MIDS-LVT include Link-16 enhanced throughput (ET), Link-16 frequency remapping (FR), and programmable crypto. MIDS JTRS accommodates incremental delivery of the advanced JTRS waveforms through MIDS JTRS platform capability packages, such as the Joint Airborne Networking–Tactical Edge (JAN-TE) capability.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF); Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

Other Major Interdependencies

Link-16, TACAN, JAN-TE Waveforms; multiple Joint and coalition airborne, ground, and maritime platforms

PROGRAM STATUS

- **1QFY10:** MIDS Program Memorandum of Understanding Extension to 2021 signed between the U.S., France, Italy, Germany, and Spain

- **1QFY10:** Milestone Decision Authority approval of MIDS JTRS limited production and fielding of 41 terminals for USN (F/A-18E/F) and USAF (JSTARs)
- **2QFY10:** MIDS-LVT Lot 11 contract award bringing total of MIDS-LVT terminals on contract or delivered to 6,000+
- **2QFY10:** MIDS JTRS receives National Security Agency Type 1 certification
- **3QFY10:** MIDS JTRS developmental test complete
- **3QFY10:** MIDS JTRS operational test readiness review complete
- **4QFY10:** MIDS JTRS initial operational test and evaluation (IOT&E) conducted

PROJECTED ACTIVITIES

- **1QFY11:** MIDS JTRS IOT&E report issued by commander, operational test and evaluation force
- **2QFY11:** MIDS JTRS IOT&E report issued by director, operational test and evaluation
- **2QFY11:** MIDS JTRS initial operational capability with the USN F/A-18E/F Super Hornet
- **2QFY11:** MIDS JTRS full production and fielding decision

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)

FOREIGN MILITARY SALES

MIDS-LVT:

1,881 terminals (internationally)

JTRS MIDS:

None

CONTRACTORS

ViaSat Inc. (Carlsbad, CA)

Data Link Solutions:

Rockwell Collins (Cedar Rapids, IA)

BAE Systems (Wayne, NJ)

EuroMIDS (Paris, France)

Thales (France)

Selex (Italy)

EADS (Germany)

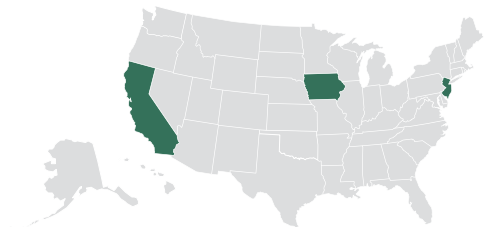
Indra (Spain)



MIDS Core Terminal



MIDS-LVT



Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Develops portable, interoperable, mobile ad-hoc networking waveforms/applications, providing the combatant commanders with the ability to command, control, and communicate with their forces via secure voice, video, and data media forms during military operations.

DESCRIPTION

The Joint Tactical Radio System, Network Enterprise Domain (JTRS NED) is responsible for the development, sustainment, and enhancement of interoperable networking and legacy software waveforms. NED's product line consists of: 14 legacy waveforms (Bowman VHF, COBRA, EPLRS, Have Quick II, HF SSB/ALE, HF 5066, Link 16, SINCGARS, UHF DAMA SATCOM 181/182/183/184, UHF LOS, VHF LOS); three mobile ad-hoc networking

waveforms (Wideband Networking Waveform [WNW], Soldier Radio Waveform [SRW], and Mobile User Objective System [MUOS]–Red Side Processing); Network Enterprise Services (NES) including the JTRS WNW Network Manager (JWNM), Soldier Radio Waveform Network Manager (SRWNM), JTRS Enterprise Network Manager (JENM), and Enterprise Network Services (ENS).

JTRS NED manages the development of Software Waveforms targeted to operate on platforms such as the Ground Mobile Radio (GMR), the Handheld, Manpack, and Small Form Fit (HMS) radios, the Airborne and Maritime/Fixed Site (AMF) radios, and the Multifunctional Information Distribution System (MIDS) radios. The JTRS NED software development and sustainment efforts leverage commercial technology and employ open-system architecture to better ensure interoperability and portability of each waveform. JTRS NED develops networking waveforms to support wireless networking with Global Information Grid connectivity for deployed warfighters at the tactical

edge. In addition, NED provides network management and network services software for the planning, execution, configuration, and monitoring of the JTRS radios and networks, including route and retransmit services between networking and legacy waveforms.

SYSTEM INTERDEPENDENCIES

In this Publication

JTRS GMR; JTRS AMF; JTRS MIDS; JTRS HMS; Single Channel Ground and Airborne Radio System (SINCGARS)

Other Major Interdependencies

Enhanced Position Location and Reporting System (EPLRS), MUOS, Link 16

PROGRAM STATUS

- **FY10:** Legacy WF/SRW final qualification test (FQT) completed
- **1QFY10:** HF FQT completed
- **1QFY10:** WNW FQT completed
- **1QFY10:** SRW Delta FQT on HMS completed
- **2QFY10** JWNM FQT completed

PROJECTED ACTIVITIES

- **1QFY11:** Complete ENS Phase 1 (SoftINC) FQT
- **1QFY11:** Complete SRWNM FQT
- **2QFY11:** Complete MUOS FQT
- **3QFY11:** Complete ENS Phase 1 (TDC) FQT
- **4QFY11:** Complete JENM Phase 2 FQT
- **4QFY12:** Complete JENM Phase 3 FQT

ACQUISITION PHASE

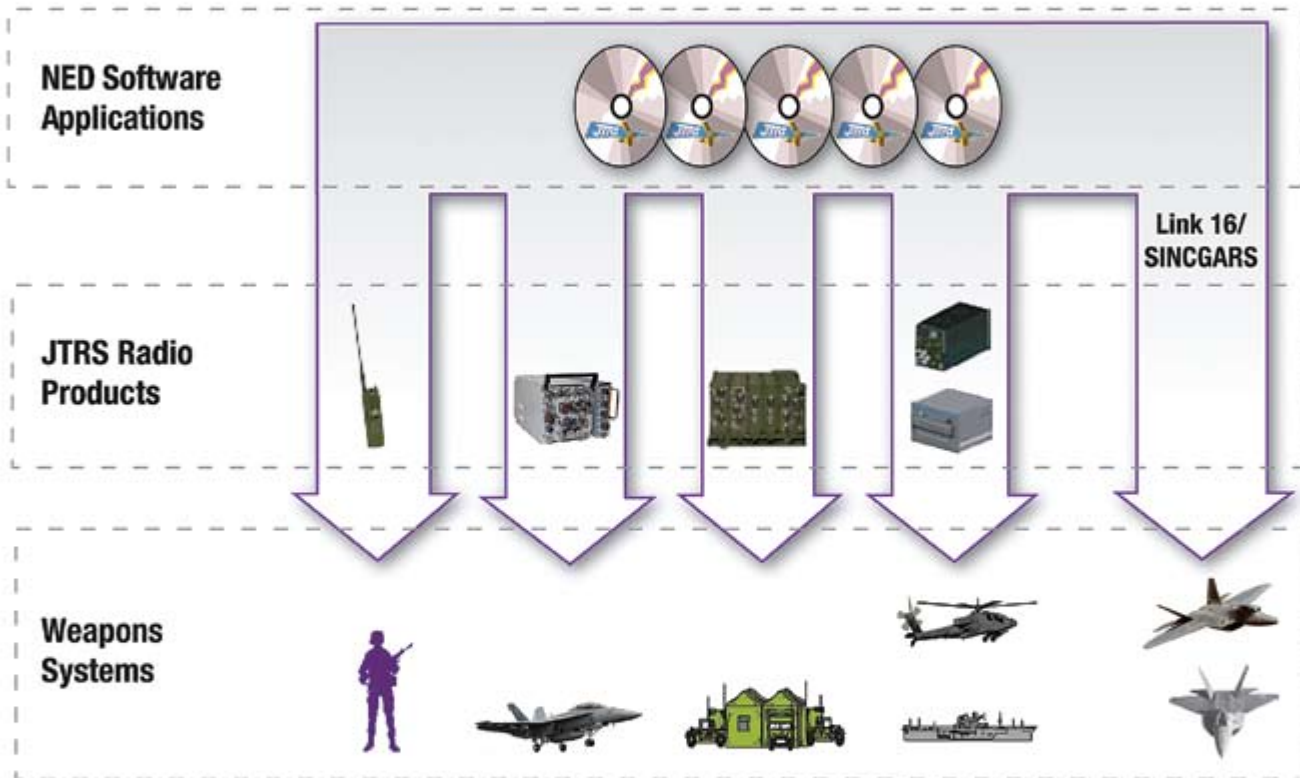
Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

**Joint Tactical Radio System,
Network Enterprise Domain
(JTRS NED)**



FOREIGN MILITARY SALES

None

CONTRACTORS

MUOS:

Lockheed Martin (Sunnyvale, CA)

SRW, SRWNM, ENS Phase 1 (SoftINC):

ITT (Fort Wayne, IN)

PM Support:

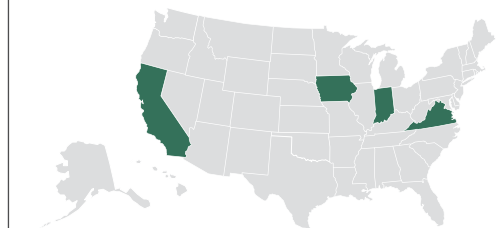
SRA (Fairfax, VA)

JWNM, WNW, JENN:

Boeing (Huntington Beach, CA)

ENS Phase 1 (TDC):

Rockwell Collins (Cedar Rapids, IA)



Joint Warning and Reporting Network (JWARN)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Accelerates the warfighter's response to a chemical, biological, radiological, or nuclear (CBRN) attack by providing Joint forces the capability to report, analyze, and disseminate detection, identification, location, and warning information.

DESCRIPTION

The Joint Warning and Reporting Network (JWARN) is a computer-based application that networks CBRN sensors directly with Joint and service command and control systems to collect, analyze, identify, locate, and report information on CBRN activity and threats, and to disseminate that information to decision-makers throughout the command.

JWARN's Mission Application Software (JMAS) will be compatible and integrated with Joint service command, control, communications, computers, intelligence, and surveillance reconnaissance (C4ISR) systems. It will generate warning and dewatering information to affected forces via nuclear, biological, and chemical (NBC)

reports, Allied Tactical Publication (ATP)–45 hazard plots, and integrates with the Joint Effects Model (JEM) to provide detailed hazard prediction plume overlays. JWARN automates the recording and archiving of exposure data for effective force protection. It reduces the time from incident observation to warning to within two minutes, enhances warfighters' situational awareness throughout the area of operations, and supports battle management tasks.

JWARN's component interface device connects to the sensors, and relays warnings to C4ISR systems via advanced wired or wireless networks.

SYSTEM INTERDEPENDENCIES

In this Publication

Global Command and Control System–Army (GCCS-A), Joint Effects Model (JEM), Force XXI Battle Command Brigade and Below (FBCB2)

Other Major Interdependencies

Battle Command Common Services (BCCS), Command Post of the Future (CPOF), Maneuver Control System (MCS)

PROGRAM STATUS

- **4QFY10:** JWARN 1.0 full deployment decision (GCCS-J, GCCS-A, C2PC, JEM)
- **4QFY10:** Production and deployment begins
- **4QFY10:** JWARN 1.0 initial operational capability

PROJECTED ACTIVITIES

- **FY11:** Continue production and deployment
- **FY11:** MCS/CPOF/BCCS and FBCB2/JCR interoperability testing
- **1QFY11:** JWARN 1.0 GCCS-M operational testing

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

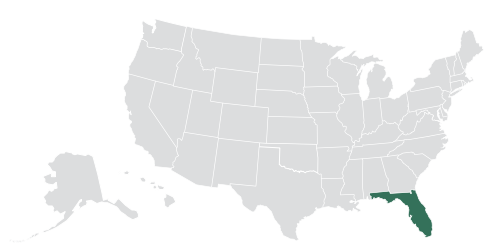
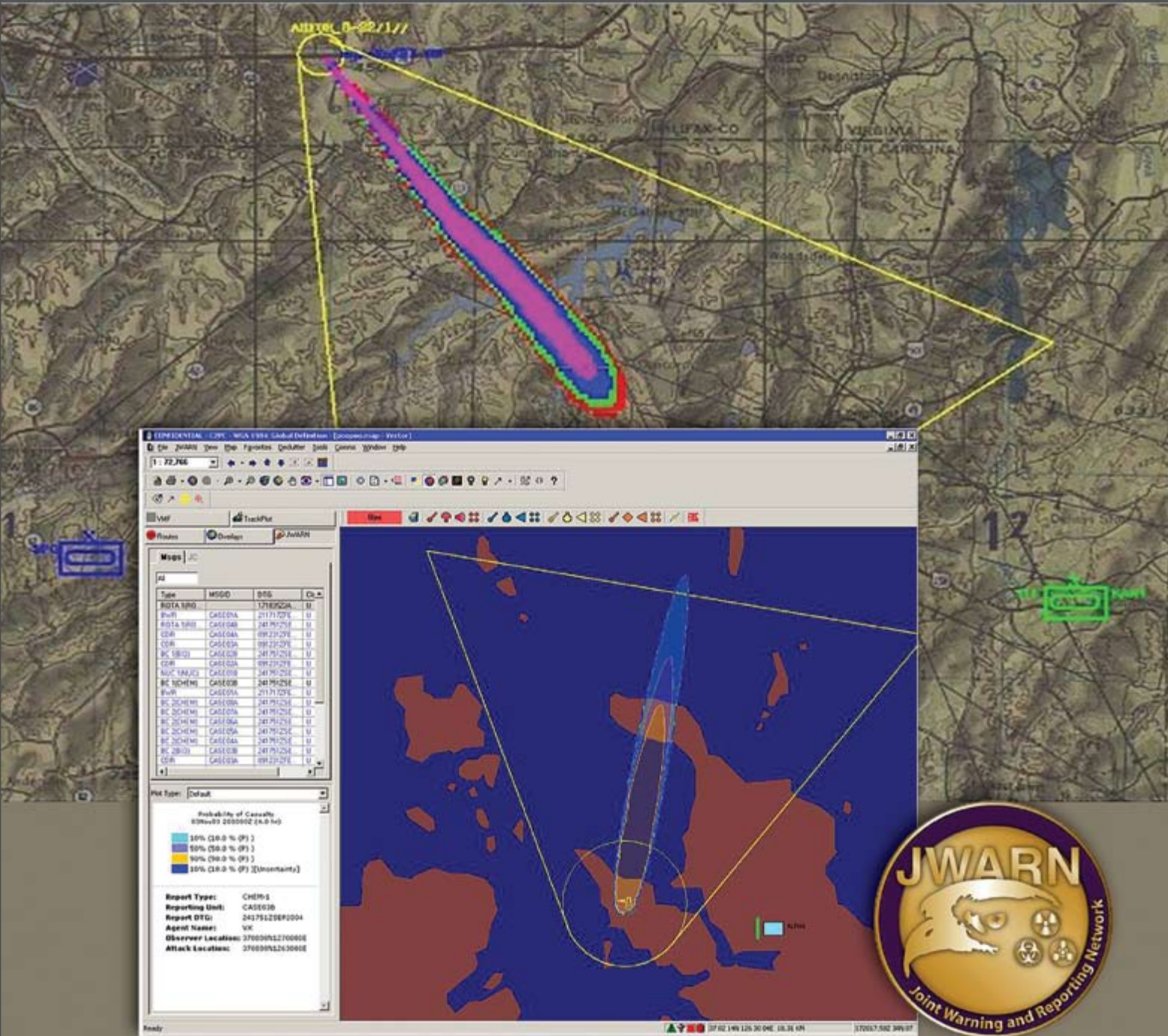
Joint Warning and Reporting Network (JWARN)

FOREIGN MILITARY SALES

None

CONTRACTORS

Northrop Grumman Information Technology (Orlando, FL)



Kiowa Warrior

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Performs aerial reconnaissance and security in support of ground maneuver forces.

DESCRIPTION

The Kiowa Warrior is a single-engine, two-man, lightly armed reconnaissance helicopter with advanced visionics, navigation, communication, weapons, and cockpit integration systems. Its mast-mounted sight houses a thermal imaging system, low-light television, and a laser rangefinder/designator permitting target acquisition and engagement at standoff ranges and in adverse weather. The navigation system can convey precise target locations to other aircraft or artillery via its advanced digital communications system. It provides anti-armor and anti-personnel capabilities at standoff ranges.

The Army is currently installing modifications to address safety, obsolescence, and weight to keep the aircraft viable through its projected retirement date of FY25. Additionally, the Army has started an aircraft replacement program to address Kiowa Warrior losses.

SYSTEM INTERDEPENDENCIES

In this Publication

2.75 Inch Rocket Systems (Hydra), Hellfire Family of Missiles

Other Major Interdependencies

M3P .50 Caliber Machine Gun, various communications, navigation, and weapons systems

PROGRAM STATUS

- **FY10:** Reset 53 aircraft re-deploying from Operation Iraqi Freedom/ Operation Enduring Freedom
- **FY10:** Fielded 85 condition-based maintenance sets
- **2QFY10:** Inducted 6th CAT-B aircraft for restoration to flyable status
- **2QFY10:** Contract awarded for engineering services

- **3QFY10:** Contract awarded for Single Channel FADEC enhancements
- **3QFY10:** Inducted 7th CAT-B aircraft for restoration to flyable status
- **3QFY10:** Kiowa Warrior Cockpit and Sensor Upgrade Program (CASUP) system requirement review
- **3QFY10:** Completed delivery of lot 12 Safety Enhancement Program (SEP) aircraft (27 aircraft)
- **4QFY10:** Contract awarded for improved cabin heater
- **4QFY10:** First induction for SEP lot 13 (30 aircraft)
- **4QFY10:** Inducted 8th CAT-B aircraft for restoration to flyable status (one remains)
- **4QFY10:** Begin fielding floor armor

PROJECTED ACTIVITIES

- **1QFY11:** Induct pilot aircraft for Kiowa Warrior sustainment maintenance program at Corpus Christi Army Depot (CCAD)
- **1QFY11:** Begin fielding Level II Manned Unmanned Teaming to first squadron (first unit equipped)

- **1QFY11:** Kiowa Warrior CASUP Milestone B briefing
- **2QFY11:** First production modifications of AN/AAR-57 Common Missile Warning System-equipped Kiowa Warrior aircraft
- **2QFY11:** Induct 9th CAT-B aircraft for restoration to flyable status (last aircraft)
- **2QFY11:** Award production contract for Kiowa Warrior cabins (used to build wartime replacement aircraft)
- **3QFY11:** Kiowa Warrior CASUP critical design review
- **3QFY11:** Begin structural modifications on first Kiowa Warrior CASUP test aircraft
- **3QFY11:** Delivery of pilot Kiowa Warrior cabin from Bell Helicopter; induct into final assembly at CCAD
- **4QFY11:** Begin fielding single channel FADEC safety improvements
- **4QFY11:** Complete SEP lot 13; program completion (last lot of 30 aircraft)

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

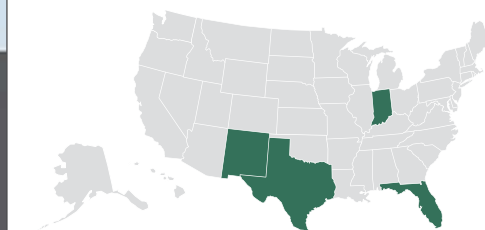
Kiowa Warrior

FOREIGN MILITARY SALES

Taiwan

CONTRACTORS

Bell Helicopter Textron (Fort Worth, TX)
DRS Optronics, Inc. (Palm Bay, FL)
Rolls Royce Corp. (Indianapolis, IN)
Honeywell (Albuquerque, NM)
Elbit Systems of America (Fort Worth, TX)



Light Tactical Trailer (LTT)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Increases the cargo carrying capability of the High Mobility Multipurpose Wheeled Vehicle (HMMWV).

DESCRIPTION

The Light Tactical Trailer (LTT) is the companion trailer for the HMMWV. It is a general purpose cargo trailer offering significant improvement over the M101 series trailers it replaces. Current improvements include an enhanced brake actuator, steel draw bar, improved off-road mobility, stability, and reliability. The LTT meets cross-country speed requirements when coupled to the HMMWV. The LTT is produced in three configurations: the M1101 (Light), the M1102 (Heavy), and the LTT Chassis.

Gross vehicle weight: M1101 is 3,400 pounds, M1102 is 4,200 pounds
Maximum payload weights: M1101 is 1,500 pounds, M1102 is 2,500 pounds, LTT Chassis is 2,700 pounds

SYSTEM INTERDEPENDENCIES

High Mobility Multipurpose Wheeled Vehicle (HMMWV) Family of Vehicles; HMMWV is the prime mover for this trailer—the trailer is the mobile platform for various weapons and combat support systems.

PROGRAM STATUS

- **Current:** Continue fielding to Army, Marine Corps, Navy, and Air Force customers

PROJECTED ACTIVITIES

- **FY11:** No significant activities

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Light Tactical Trailer (LTT)

FOREIGN MILITARY SALES

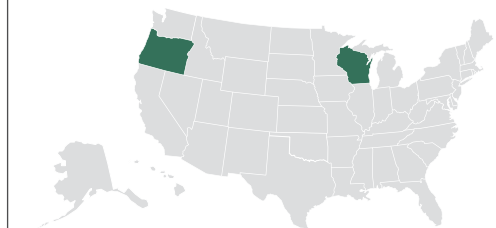
Kenya, Afghanistan

CONTRACTORS

Silver Eagle Manufacturing Co. (SEMCO)

(Portland, OR)

Schutt Industries (Clintonville, WI)



Light Utility Helicopter (LUH)/UH-72A Lakota

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a flexible response to homeland security requirements such as search and rescue operations, reconnaissance and surveillance, and medical evacuation (MEDEVAC) missions.

DESCRIPTION

The UH-72A Lakota Light Utility Helicopter (LUH) will conduct general support utility helicopter missions and execute tasks as part of an integrated effort with other Joint services, government agencies, and non-governmental organizations. The LUH is to be deployed only to non-combat, non-hostile environments. The UH-72A is a variant of the American Eurocopter U.S.-produced EC-145.

The UH-72A is a twin-engine, single-main-rotor commercial utility helicopter of the three- to six-ton class.

It has seating for two pilots and up to five passengers or two NATO standard litters, crew chief, and medical attendant. Two Turbomeca Arriel 1E2 engines, combined with an advanced four-blade rotor system, provide lift and speed in a wide range of operating conditions, including high-altitude and single-engine operation capability. Access to the aircraft is through sliding doors on each side of the cabin or through the wide rear clamshell doors.

Crew seating comprises longitudinally adjustable, energy-absorbing pilot and copilot seats with head rest and four-point safety belts with automatic locking system. The passenger seats have a four-point restraint harness.

The aircraft is equipped with modern communication and navigation avionics. The cockpit is arranged and lit to be compatible with night vision goggles. Included in the avionics are a radar altimeter, full autopilot, and a unique First Limit Indicator that further simplifies engine monitoring and reduces pilot workload.

In addition to the MEDEVAC and hoist configuration, the UH-72A is also being fielded in a VIP, National Guard Homeland Security and a Combined Training Center configuration.

The United States Navy Test Pilot School (TPS) ordered five UH-72A aircraft in 2008.

Max gross weight: 7,903 pounds

Max cruise airspeed: 142 knots

Engines (2 each): Turbomeca Arriel 1E2

Internal/external load: 1,107 pounds

Crew: Two pilots, one crew chief, up to 5 passengers

Range at sea level: 303 nautical miles

Endurance: 3.3 hours, no reserve

SYSTEM INTERDEPENDENCIES

In this Publication

Air Warrior (AW), Black Hawk/UH-60

Other Major Interdependencies

ARC-231, C-5 (RERP), C-17, Civil Comms, GATM, OH-58A/C, UH-1, Sealift, USCG Comms, VHF/UHF Comms

PROGRAM STATUS

- **FY09:** 128 aircraft on contract, with 41 to be delivered
- **2QFY09:** First fielding of MEDEVAC configuration to National Guard
- **3QFY09:** Field first aircraft overseas to National Guard units
- **4QFY09:** Initiated retrofit of ARC-231
- **1QFY10:** 4 Navy TPS aircraft delivered
- **2QFY10:** Completed delivery of 100 aircraft
- **3QFY10:** Aircraft fielded to Europe, Kwajalein
- **4QFY10:** Completed delivery of 123 aircraft, first three years of production
- **Current:** Total of 72 aircraft delivered to units in Active Army and National Guard; receiving mission equipment packages, including vent kit, Environmental Control Unit, medical equipment storage kit, VIP kit, ARC-231 military radio, and equipment to support training operations/National Guard counter-drug mission

PROJECTED ACTIVITIES

- **4QFY11:** Completed delivery of 180 aircraft

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Light Utility Helicopter (LUH)/UH-72A Lakota

FOREIGN MILITARY SALES

None

CONTRACTORS

Airframe:

American Eurocopter (Columbus, MS;
Grand Prairie, TX)

CLS:

Helicopter Support, Inc. (Trumbull, CT)
American Eurocopter (Grand Prairie, TX)

Training:

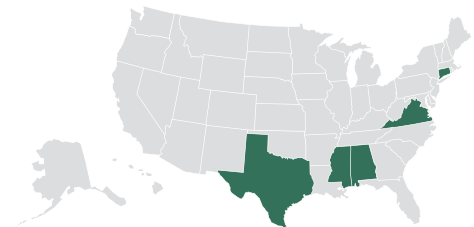
American Eurocopter (Grand Prairie, TX)

CFSR:

American Eurocopter (Grand Prairie, TX)

Program Management:

EADS North America (Huntsville, AL;
Arlington, VA)
Helicopter Support, Inc. (Huntsville, AL;
Grand Prairie, TX)



XM806—Lightweight .50 cal Machine Gun

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides a lighter, more accurate .50 caliber machine gun to reduce warfighter load, provide for more rapid emplacement and displacement, increase dismounted portability, and reduce the strain on vehicle mounts.

DESCRIPTION

The XM806 Lightweight .50 Caliber Machine Gun weighs approximately one-half as much as a similarly configured M2 and reduces the recoil by at least 60 percent. This lighter weight permits easy dismount and ground transportability when necessary, and the reduced recoil permits the mounting of an optic for greater lethality through increased first-burst accuracy and control.

The XM806 can fire all of the .50 caliber service ammunition in the current inventory and is capable of defeating personnel and lightly armored targets out to 2,000 meters. It is designed to augment the M2 .50 caliber machine gun, but can also be used to replace the M2 in select operational locations. Safety is

improved through a manual safety and a quick change barrel that eliminates the requirement for the operator to adjust headspace and timing.

The weapon is ideal for light infantry and special operations forces, as well as for vehicles demanding more lethality but lighter weight.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY08:** Milestone B
- **4QFY08:** Initiated engineering and manufacturing development phase
- **3QFY09:** Completed three weapon prototypes for engineering testing
- **3QFY09:** Contract awarded to build government-test assets

PROJECTED ACTIVITIES

- **1QFY11:** Development tests and limited user tests

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



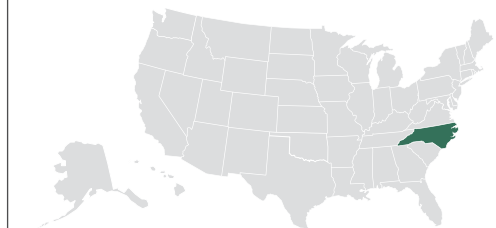
XM806—Lightweight .50 cal Machine Gun

FOREIGN MILITARY SALES

None

CONTRACTORS

General Dynamics Armament and
Technical Products (Charlotte, NC)



Lightweight 155mm Howitzer (LW155)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides direct, reinforcing, and general artillery fire support to maneuver forces.

DESCRIPTION

The Lightweight 155mm Howitzer (M777A2) will replace all M198 155mm howitzers in operation with the Army and Marine Corps. The extensive use of titanium in all its major structures makes it 7,000 pounds lighter than its predecessor, the M198, with no sacrifice in range, stability, accuracy, or durability, and it can be dropped by parachute. The M777A2's independent suspension, smaller footprint, and lower profile increase strategic deployability and tactical mobility. The system uses numerous improvements to enhance reliability and accuracy, and significantly increase system survivability.

The M777A2 is jointly managed; the Marine Corps led the development of the howitzer and the Army led the development of Towed Artillery Digitization, the digital fire control system for the M777A2.

Software upgrades incorporating the Enhanced Portable Inductive Artillery Fuze Setter and the Excalibur Platform Integration Kit hardware give the M777A2 the capability to program and fire the Excalibur precision-guided munition.

Specifications for the M777A2 Excalibur-compatible howitzer are:

Weight: 10,000 pounds

Emplace: Less than three minutes

Displace: Two to three minutes

Maximum range: 30 kilometer (rocket assisted round)

Rate-of-fire: Four rounds per minute maximum; two rounds per minute sustained

Ground mobility: Family of Medium Tactical Vehicles (FMTV), Medium Tactical Vehicle Replacement, five-ton trucks

Air mobility: Two per C-130; six per C-17; 12 per C-5; CH-53D/E; CH-47D; MV-22

155mm compatibility: All fielded and developmental NATO munitions

Digital and optical fire control: Self-locating and pointing; digital and voice communications; self-contained power supply

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS); Artillery Ammunition; Excalibur (XM982); Family of Medium Tactical Vehicles (FMTV); Precision Guidance Kit (PGK); Single Channel Ground and Airborne Radio System (SINGARS)

Other Major Interdependencies

Army Software Blocking, Defense Advanced Global Positioning System Receiver

PROGRAM STATUS

- **4QFY10:** Full-rate production with a total of 640 systems delivered to the Army and Marine Corps (265/375 respectively)

PROJECTED ACTIVITIES

- **FY11:** Continue full-rate production and fielding to Army, Marine Corps, and National Guard units
- **FY11:** Continue Army Force Generation Reset and start depot pilot overhaul

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Lightweight 155mm Howitzer (LW155)

FOREIGN MILITARY SALES

Australia and Canada

CONTRACTORS

Prime:

BAE Systems (Hattiesburg, MS; Barrow-in-Furness, United Kingdom)

Cannon Assembly (GFE):

Watervliet Arsenal (Watervliet, NY)

Titanium Castings:

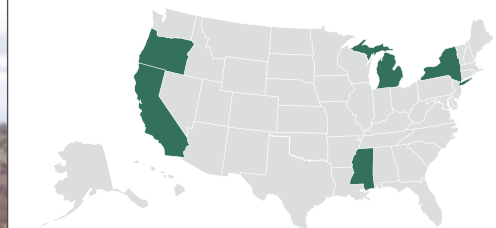
Precision CastParts Corp. (Portland, OR)

Body:

Triumph Structures (Chatsworth, CA)

Castings:

Howmet Castings (Whitehall, MI)



Lightweight Laser Designator/Rangefinder (LLDR) AN/PED-1

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the Soldier the ability to accurately locate and designate targets for engagement with precision munitions.

DESCRIPTION

The AN/PED-1 Lightweight Laser Designator Rangefinder (LLDR) is a man-portable, modular target locator and laser designation system. The primary components are the Target Locator Module (TLM) and the Laser Designator Module (LDM).

The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, Selective Availability/Anti-Spoofing Module Global Positioning System (SAASM GPS), and digital export capability.

The LLDR 2 TLM has an integral capability that enables the operator to see the laser designator spot during missions. The TLM can be used as a stand-alone device or in conjunction with the LDM. At night and in obscured battlefield conditions, the operator can recognize vehicle-sized targets at

more than 3 kilometers. During day operations, targets can be recognized at more than 7 kilometers. The LDM emits coded laser pulses compatible with DoD and NATO laser-guided munitions. Targets can be designated at ranges greater than 5 kilometers.

Weight (total system): 35 pounds (LLDR 1) and less than 30 pounds (LLDR 2) for a 24-hour mission

Laser designator range: > 5 kilometers

Power: LLDR1 one BA-5699 or one Single Channel Ground and Airborne Radio System (SINCGARS) battery without use of laser designator; LLDR2 one SINCGARS battery (BA-5390 or BA-5590)

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY10:** Fielded to units supporting Operation Enduring Freedom and Operation Iraqi Freedom
- **FY10:** Follow-on delivery order awards

PROJECTED ACTIVITIES

- **FY11:** Begin fielding LLDR 2 in accordance with Headquarters, Department of the Army G8 priorities
- **FY11:** Follow-on procurement of a high accuracy version of LLDR to target for GPS guided munitions

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

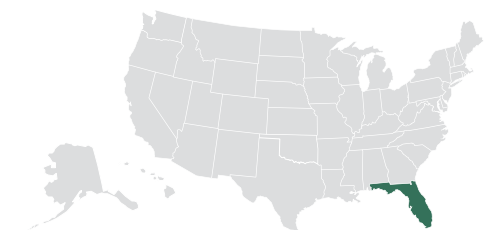
Lightweight Laser Designator Range Finder (LLDR) AN/PED-1

FOREIGN MILITARY SALES

None

CONTRACTORS

Northrop Grumman Laser Systems
(Apopka, FL)



Line Haul Tractor

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports combat service and support units with transportation of bulk petroleum products, containerized cargo, general cargo, and bulk water.

DESCRIPTION

The M915A5 Truck Tractor is a 6x4 semi-tractor used to perform the Line Haul mission. The M915A5 is a block upgrade of the M915A3 system, incorporating enhanced suspension and power train components. This block upgrade allows the M915A5 to readily accept armor packages without reducing mission capability.

Gross vehicle weight rating: 120,000 pounds

Unarmored Gross vehicle weight: 26,500 pounds

Armored Gross vehicle weight: 33,500 pounds

Fifth-wheel capacity: six-inch, 30,000 pounds

Diagnosis: Electronic

Brake system: Anti-lock brake system (ABS)

Towing speed: 65 miles per hour with full payload

Engine: Detroit Diesel S60 (500 horse power, 1650 pound-foot torque, DDEC IV engine controller)

Transmission: Allison HD4500SP (six-speed automatic)

The M915A5 truck is equipped with a two-passenger cab and has an updated power distribution module, upgraded wiring harnesses, and a Roll Stability Control system. Auxiliary power connections have been added to supply emerging systems and added command, control, communications, computers, and intelligence communication systems. A pair of 60-gallon fuel tanks increase fuel capacity by 20 gallons to extend driving range. The cab is ten inches wider and extends 34 inches behind the driver and passenger seats. The vehicle has an improved ABS and an updated collision warning system.

The M915A3 Line Haul Tractor is the Army's key line haul distribution platform. It is a 6x4 tractor with a two-inch kingpin and 105,000-pound gross combination weight capacity.

Gross vehicle weight: 52,000 pounds
Fifth-wheel capacity: two-inch, 30,000 pounds

Diagnosis: Electronic

Brake system: ABS

Towing speed: 65 miles per hour with full payload

Engine: Detroit Diesel S60 (430 horse power, 1,450 pound-foot torque, DDEC IV engine controller)

Transmission: Allison HD5460P (six-speed automatic) with power take-off

The M916A3 Light Equipment Transport (LET) is a 6x6 tractor with 68,000-pound gross vehicle weight tractor with 3-1/2-inch, 40,000-pound capacity, 45,000-pound winch for recovery and transport and compensator fifth wheel. It has an electronic diesel engine, automatic electronic transmission, ABS and is capable of operating at speeds up to 60 miles per hour on flat terrain. This Non-Developmental Item (NDI) vehicle is used primarily to transport the M870 40-ton low-bed semi-trailer.

The M917A2 and M917A2 Truck Chassis, 75,000 gross vehicle weight rating, 8x6 (for 20-ton dump truck), 12-cubic yard dump truck vehicles are authorized in

Corps units, primarily the construction and combat support companies and the combat heavy battalions. It has an electronic diesel engine, automatic electronic transmission, ABS, and is capable of operating at speeds up to 55 miles per hour on flat terrain.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS)

Other Major Interdependencies

M872, 34-ton flatbed semi-trailer;
M1062A1, 7,500-gallon semi-trailer;
M967/M969, 5,000-gallon semi-trailer

PROGRAM STATUS

- **FY10:** Full production continues in support of Army operations in the United States and abroad

PROJECTED ACTIVITIES

- **1QFY11:** M915A5 type classification/materiel release; production cut-in, ramp-up, and first unit equipping

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Line Haul Tractor

FOREIGN MILITARY SALES

Afghanistan

CONTRACTORS

Prime:

Daimler Trucks North America LLC/
Freightliner (Portland, OR; Cleveland, NC)

Engine:

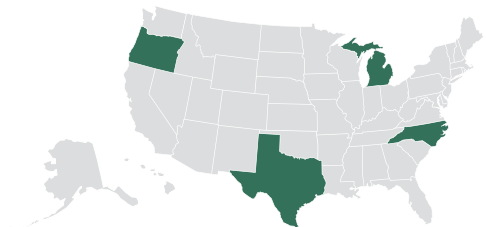
Detroit Diesel (Detroit, MI)

ABS Brakes:

Meritor (Troy, MI)

Dump body:

Casteel Manufacturing (San Antonio, TX)



Load Handling System Compatible Water Tank Rack (Hippo)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Enhances and expedites the delivery of bulk potable water into the division and brigade areas, providing the Army with the capability to receive, store, and distribute potable water to units deployed throughout the battlefield.

DESCRIPTION

The Load Handling System (LHS) Compatible Water Tank Rack (Hippo) represents the latest in bulk water distribution systems technology. It replaces the 3,000 and 5,000 Semi-trailer Mounted Fabric Tanks. The Hippo consists of a 2,000-gallon potable water tank in an International Organization for Standardization frame with an integrated pump, engine, alternator, filling stand, and 70-foot hose reel with bulk suction and discharge hoses. It has the capacity to pump 125 gallons of water per minute.

The Hippo is fully functional, mounted or dismounted, and is air transportable and ground transportable when full, partially full, or empty. It is Heavy Expanded Mobility Tactical Truck (HEMTT)-LHS, Palletized Load System (PLS)- and PLS-Trailer-compatible, and designed to operate in cold weather environments and can prevent water from freezing at -25 degrees Fahrenheit. The Hippo can be moved, set up, and established rapidly using minimal assets and personnel. No site preparation by engineer assets is required, and its modular configuration supports Expeditionary Joint Forces Operations.

SYSTEM INTERDEPENDENCIES

HEMTT-LHS, PLS, and PLS Trailer

PROGRAM STATUS

- **2QFY07:** Full materiel release
- **1QFY08:** Production and fielding
- **4QFY08:** Additional quantities placed on contract
- **FY09:** Updated integrated electronic technical manuals
- **FY10:** Continue production and fielding with 625 systems fielded as of July 30, 2010

PROJECTED ACTIVITIES

- **FY11 and beyond:** Continue production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

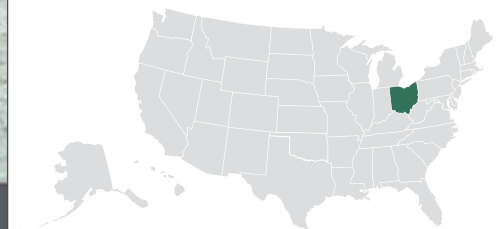
Load Handling System Compatible Water Tank Rack (Hippo)

FOREIGN MILITARY SALES

None

CONTRACTORS

Mil-Mar Century, Inc. (Miamisburg, OH)



Longbow Apache (AH-64D) (LBA)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Conducts armed reconnaissance, close combat, mobile strike, and vertical maneuver missions when required, in day, night, obscured battlefield, and adverse weather conditions.

DESCRIPTION

The AH-64D Longbow Apache (LBA) is the Army's only heavy attack helicopter for both the current and Future Force. It is capable of destroying armor, personnel, and materiel targets in obscured battlefield conditions. The Longbow Apache is a 2-engine, 4-bladed, tandem-seat attack helicopter with 30mm cannon, Hydra 70 2.75 inch rockets, laser, and Radio Frequency (RF) Hellfire missiles. It upgrades 634 Apaches into AH-64D Longbow Block III configuration with procurement of 259 Fire Control Radars. There will also be 56 new Block III aircraft built to meet force requirements. The Modernized-Target

Acquisition Designation Sight/Pilot Night Vision Sensor (MTADS/PNVS) is a major combat multiplier on Longbow Apache.

The Apache fleet includes the A model Apache and D model Longbow. The A model fleet is being consumed by the Longbow remanufacturing program. There are less than 100 Apache A models remaining with the last A model removed from the force structure in FY13. The Longbow remanufacturing effort uses the A model and incorporates a millimeter-wave FCR, radar frequency interferometer (RFI), fire-and-forget radar-guided Hellfire missiles, and other cockpit management and digitization enhancements.

The Longbow is undergoing recapitalization modifications such as upgraded forward-looking infrared technology with the MTADS/PNVS, non-line-of-sight communications, video transmission/reception, and maintenance cost reductions. Longbow supports Brigade Combat Teams across the full spectrum of warfare. Apache is fielded to Active Army, National Guard and Army Reserve attack battalions,

armed reconnaissance battalions, and cavalry units as defined in the Army Modernization Plan.

The Longbow Apache Block III (AB3) program is the next evolution of the Apache. Block III meets all the requirements for Army and Joint interoperability goals for the future and will add significant combat capability while addressing obsolescence issues and will ensure the aircraft remains a viable combat multiplier beyond 2035.

The Block III modernized Longbows will be designed and equipped with an open systems architecture to incorporate the latest communications, navigation, sensor, and weapon systems.

Combat mission speed: Longbow 145 knots (max speed); AB3 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 30mm chain gun rounds

Crew: Two (pilot and copilot gunner)

SYSTEM INTERDEPENDENCIES

2.75 Inch Rocket Systems (Hydra), Air Warrior (AW), Laser Hellfire, Shadow Tactical Unmanned Aircraft System (TUAS), Unmanned Aircraft System

PROGRAM STATUS

- **1QFY09:** Block III system development and demonstration contract currently 50 percent complete
- **4QFY10:** Milestone C decision
- **Current:** Upgrade Block I and II Longbow to Block III configuration with eventual acquisition objective of 634 remanufacture airframes and 56 new build airframes for a total of 690 Block III Longbows

PROJECTED ACTIVITIES

- **FY11:** Block I inductions into Block III remanufacturing assembly line
- **2QFY11:** Initial Block III deliveries
- **3QFY12:** First unit equipped
- **2QFY13:** Initial operating capability
- **FY25:** End of production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Longbow Apache (AH-64D) (LBA)

FOREIGN MILITARY SALES

Egypt, Greece, Israel, Kuwait, Netherlands, Saudi Arabia, Singapore, United Arab Emirates

Direct commercial sales: Greece, Japan, United Kingdom

CONTRACTORS

Airframe: Boeing (Mesa, AZ)

MTADS: Lockheed Martin (Orlando, FL)

REU: Lockheed Martin (Orlando, FL)
Northrop Grumman (Linthicum, MD)

APU: Honeywell (Phoenix, AZ)

Technical: Aviation and Missile Solutions, LLC (Huntsville, AL)

FCR: Longbow LLC (Orlando, FL)

Radar: Northrop Grumman (Linthicum, MD)

Logistics: AEPCO (Huntsville, AL)

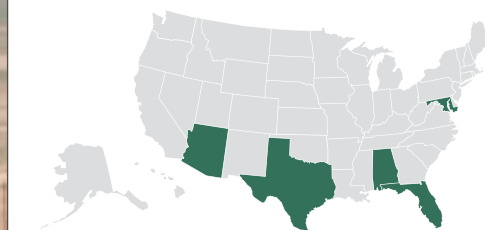
TADS/PNVS: Lockheed Martin (Goodyear, AZ)

Programmatics: DynCorp (Fort Worth, TX)

EGL: Honeywell (Clearwater, FL)

LRUs: Smiths (Clearwater, FL)

IPAS: Honeywell (Tempe, AZ)



Medical Communications for Combat Casualty Care (MC4)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Integrates, fields, and supports a comprehensive medical information system, enabling lifelong electronic medical records, streamlined medical logistics, and enhanced situational awareness for Army tactical forces.

DESCRIPTION

Medical Communications for Combat Casualty Care (MC4) is a ruggedized system-of-systems containing Joint software applications fielded to tactical medical forces throughout the combat zone, the U.S., and contingency operations worldwide. MC4 integrates Defense Health Information Management System (DHIMS) Theater Medical Information Program–Joint (TMIP-J) software, and other Army-unique applications, onto commercial- and government-off-the-shelf technology, providing the tools needed to digitally record and transfer critical medical data from the foxhole to medical treatment facilities worldwide.

Deployable medical forces use the MC4 system to gain quick, accurate access to patient histories and forward casualty

resuscitation information. The system also provides units with automated tools facilitating patient tracking, medical reporting, and medical logistical support. Combatant commanders use the MC4 system to access medical surveillance information, resulting in enhanced medical situational awareness. Most importantly, MC4 is helping deployed service members. By equipping deployed medical units with automated resources, MC4 helps ensure service members have a secure, accessible, lifelong electronic medical record, which results in better-informed health care providers and easier access to Veterans Administration medical benefits.

The MC4 system comprises seven Army-approved line items that can be configured to support Army levels one through four and DoD roles one through three of the health care continuum. Future MC4 enhancements will be accomplished through minor system upgrades and major planned upgrades. With 10 years of experience managing DoD's first battlefield medical recording system, MC4 remains the most widely-

used, comprehensive information management medical system on the battlefield.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

MC4 relies on software developers such as DHIMS 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 staff worldwide.

PROGRAM STATUS

- **3QFY08–4QFY10:** Fielding per the dynamic Army resourcing priority list
- **4QFY09–4QFY10:** Fielding TMIP Block 2 release 1 software (MC4 planned upgrade #1) to theater units

PROJECTED ACTIVITIES

- **1QFY11:** Begin fielding TMIP Block 2 release 1 service pack 1
- **4QFY12:** Begin fielding TMIP Block 2 release 2 software
- **4QFY15:** Full operational capability (objective)

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Medical Communications for Combat Casualty Care (MC4)



FOREIGN MILITARY SALES

None

CONTRACTORS

Hardware:

Telos Corp. (Ashburn, VA)
 Dell Federal Systems (Round Rock, TX)

System Engineering Support:

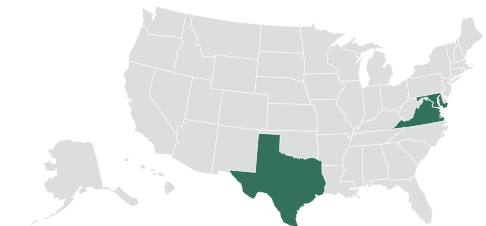
Johns Hopkins University Applied Physics Laboratory (Laurel, MD)

System Integration Support:

L-3 Communications (Reston, VA)

Fielding, Training, and System Administration Support:

General Dynamics (Fairfax, VA)



Medical Simulation Training Center (MSTC)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Conducts standardized combat medical training for medical and non-medical personnel.

DESCRIPTION

The Medical Simulation Training Center (MSTC) systems are an Army training asset, with a regional training requirement, located at installations, delivering effective medical training with a standardized training platform for both classroom and simulated battlefield conditions. The goal is to better prepare warfighters for application of medical interventions under combat conditions.

The MSTC is a standardized family of supporting component systems with the Virtual Patient System, Instruction Support System, Medical Training Command and Control (MT-C2) System, and the Medical Training Evaluation and Review System (MeTER), providing frameworks fitted with reconfigurable enabling technology and supporting training devices.

Enabling technology includes audio-visual enhancements, camera surveillance capability, computer labs, and computerized control rooms with a remotely managed training platform. Supporting training components include a computerized bleed-breathe mannequin that is weighted and airway equipped, partial task trainers, and associated equipment.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY08:** All 18 initial systems fielded

PROJECTED ACTIVITIES

- Further development and procurement of tetherless mannequin training capability, the MeTER System, and the MT-C2 System

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

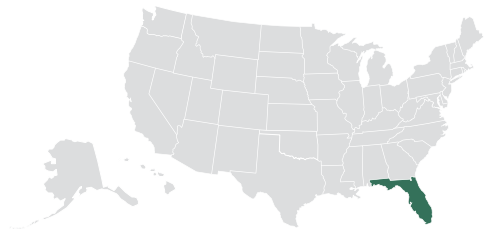
Medical Simulation Training Center (MSTC)

FOREIGN MILITARY SALES

None

CONTRACTORS

Medical Education Technologies
(Sarasota, FL)
Computer Sciences Corp. (CSC)
(Orlando, FL)



Medium Caliber Ammunition (MCA)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides overwhelming lethality in medium caliber ammunition and point- and area-target engagement via medium handheld and crew-served weapons.

DESCRIPTION

Medium caliber ammunition includes 20mm, 25mm, 30mm, and 40mm armor-piercing, high-explosive, smoke, illumination, training, and antipersonnel cartridges with the capability to defeat light armor, materiel, and personnel targets. The 20mm cartridge is a multi-purpose tracer with self destruct, used in the Counter Rocket, Artillery, and Mortar (C-RAM) weapon system. The 25mm target practice (TP), high explosive incendiary and armor-piercing cartridges are fired from the M242 Bushmaster Cannon for the Bradley Fighting Vehicle. The 30mm TP and high explosive-dual purpose (HEDP) cartridges are used in the Apache helicopter's M230 Chain Gun. A variety of 40mm TP, HEDP, and specialty cartridges are designed for use in

the M203 Grenade Launcher, M320 Grenade Launcher, and the MK19 Grenade Machine Gun.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Medium caliber ammunition is dependent upon the weapons platforms currently in use.

PROGRAM STATUS

- **Current:** In production

PROJECTED ACTIVITIES

- **FY11:** Multiple year family buys for 25mm, 30mm, and 40mm ammunition

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Medium Caliber Ammunition (MCA)



FOREIGN MILITARY SALES

25mm:

Israel, Philippines

30mm:

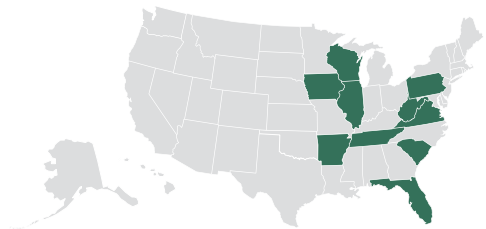
Egypt, Israel, Japan, Kuwait, Netherlands, Serbia, Taiwan, United Arab Emirates

40mm:

Afghanistan, Canada, Greece, Israel, Japan, Kenya, Philippines, Tunisia

CONTRACTORS

General Dynamics Ordnance and Tactical Systems (Marion, IL; Red Lion, PA)
 Alliant Techsystems (Radford, VA; Rocket City, WV)
 AMTEC Corp. (Janesville, WI; Camden, AR)
 DSE (Balimoy) Corp. (Tampa, FL; Gaffney, SC)
 American Ordnance (Milan, TN; Burlington, IA)



Medium Extended Air Defense System (MEADS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Defends maneuver forces and critical assets against the theater ballistic missile, cruise missile, and air-breathing threats in contingency and mature theaters.

DESCRIPTION

The Medium Extended Air Defense System (MEADS) provides a robust, 360-degree defense using the PATRIOT PAC-3 hit-to-kill missile segment enhancement (MSE) against the full spectrum of theater ballistic missiles, anti-radiation missiles, cruise missiles, unmanned aerial vehicles, tactical air-to-surface missiles, and rotary and fixed-wing threats. MEADS will also provide defense against multiple and simultaneous attacks by short-range ballistic missiles, low-radar cross-section cruise missiles, and other air-breathing threats. MEADS can be immediately deployed by air for early

entry operations. MEADS also has the mobility to displace rapidly and protect maneuver force assets during offensive operations. Netted, distributed, open architecture, and modular components are utilized in the MEADS to increase survivability and flexibility of use in a number of operational configurations. The PAC-3 MSE improves upon the current missile configuration ranges/altitudes and improves performance against maneuvering threats.

The MEADS weapon system will use its netted and distributed architecture to ensure Joint and allied interoperability, and to enable a seamless interface to the next generation of battle management command, control, communications, computers, and intelligence (BMC4I). The system's improved sensor components and its ability to link other airborne and ground-based sensors facilitate the employment of its battle elements.

The MEADS weapon system's objective battle management tactical operations center (TOC) will provide the basis for the future common air

and missile defense (AMD) TOC, leveraging modular battle elements and a distributed and open architecture to facilitate continuous exchange of information to support a more effective AMD system-of-systems.

SYSTEM INTERDEPENDENCIES

In this Publication

Integrated Air and Missile Defense (IAMD), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), Joint Tactical Ground Stations (JTAGS), PATRIOT Advanced Capability-Three (PAC-3), Surface Launched Advanced Medium Range Air-To-Air Missile (SLAMRAAM), Warfighter Information Network-Tactical (WIN-T) Increment 1, WIN-T Increment 2, WIN-T Increment 3

Other Major Interdependencies

AEGIS, AWACS, DSP, E-2C, IAMD, MSE, PEO Integration, RIVET-JOINT, THAAD MDA-Sea Based Terminal, BMDS, C-130J, C-17, CH-47F, JTRS (WNW), Link 16

PROGRAM STATUS

- **4QFY08–4QFY10:** Incremental critical design review phase

PROJECTED ACTIVITIES

- **FY11:** System program review
- **3QFY11:** Prototype Multifunction Fire Control Radar delivery to testing
- **1QFY12:** First MSE launch

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Medium Extended Air Defense System (MEADS)

FOREIGN MILITARY SALES

None

CONTRACTORS

D&D Contract:

MEADS, Intl. (Syracuse, NY; Orlando, FL; Huntsville, AL)

Lockheed Martin (Grand Prairie, TX)

PM/SYS:

Government (Statewide, AL)

MSE:

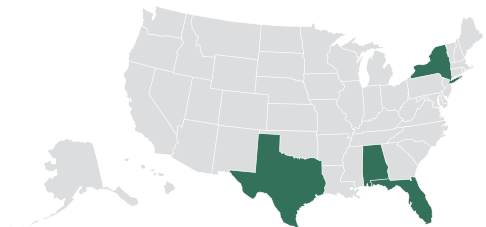
Lockheed Martin (Grand Prairie, TX)

Security/Exciter:

Lockheed Martin (Grand Prairie, TX)

SETA:

Intuitive Research and Technology (Huntsville, AL)



Meteorological Measuring Set–Profiler (MMS-P)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides on-demand, real-time meteorological data over an extended battlespace.

DESCRIPTION

The AN/TMQ-52 Meteorological Measuring Set–Profiler (MMS-P) uses a suite of meteorological sensors, meteorological data from satellites, and an advanced mesoscale atmospheric model to provide highly accurate meteorological data for indirect fire artillery forces. The system uses common hardware, software, and operating systems and is housed in a command post platform shelter and transported on an M1152A High Mobility Multipurpose Wheeled Vehicle (HMMWV).

The mesoscale atmospheric model receives large-scale atmospheric data from the Air Force Weather Agency and other meteorological sensors, and produces a vertical profile of wind speed and direction, temperature, relative humidity, cloud base height, type precipitation, and horizontal visibility in the target area, all of which are necessary for precise

targeting and terminal guidance of various munitions. Profiler transmits this data to indirect fire direction centers for use in developing the firing solution.

This new capability increases the lethality of all field artillery platforms such as the Multiple Launch Rocket System, Paladin, and self-propelled or towed howitzers by increasing the probability of first-round hit, resulting in significant ammunition cost savings for the Army. The current Profiler provides meteorological coverage throughout a 60-kilometer radius, while the follow-on Block III variant extends coverage up to 500 kilometers.

MMS-P replaces the Army's current Meteorological Measuring Set, AN/TMQ-41. For the first time, Army field artillery systems can apply meteorological data along the trajectory from the firing platform to the target area.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Navy Operational Global Atmospheric Prediction System, Global Broadcast System

PROGRAM STATUS

- **1QFY05–Present:** Completed production of the Army Authorization Objective of 108 systems, 96 of which were fielded to Maneuver Brigade Combat Teams, Fire Brigades, and the training base

PROJECTED ACTIVITIES

- **1QFY11–4QFY17:** Complete fielding of the system to Army units; develop Profiler Block III to reduce the system footprint and leverage technology and software advancements to achieve improvements in accuracy



ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

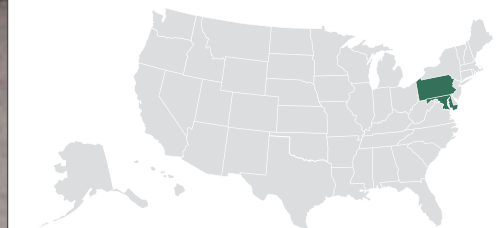
Meteorological Measuring Set-Profiler (MMS-P)

FOREIGN MILITARY SALES

None

CONTRACTORS

Smiths Detection, Inc. (Edgewood, MD)
Pennsylvania State University
(University Park, PA)



Mine Protection Vehicle Family (MPVF)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides blast-protected platforms capable of locating, interrogating, and classifying suspected explosive hazards, including improvised explosive devices (IEDs).

DESCRIPTION

The Mine Protection Vehicle Family (MPVF) consists of the Medium Mine Protected Vehicle (MMPV), the Vehicle Mounted Mine Detection (VMMD) system, and the Mine Protected Clearance Vehicle (MPCV). Each of the systems in the MPVF has a blast-deflecting, V-shaped hull, and each conducts specific missions.

The MMPV system is a blast-protected command and control vehicle platform that operates in explosive hazardous environments and is adaptable to a wide range of security and force protection activities. It will support

Future Engineer Force (FEF) clearance companies in route and area clearance operations, explosive hazards teams in explosive hazards reconnaissance operations, and explosive ordnance disposal (EOD) companies in support operations. The MMPV will also support Chemical Biological Response Teams and Prophet signals intelligence (SIGINT) systems.

The VMMD is a blast-protected, vehicle-mounted mine-detection and lane-proofing system capable of finding and marking metallic explosive hazards, including metallic-encased IEDs and anti-tank mines on unimproved roads. It consists of two towing/mine detection “Husky” vehicles, and a set of three mine detonation trailers (MDTs). The Husky detection platform detects, locates, and marks suspected metallic explosive hazards over a three-meters-wide path. The Husky provides protection against mine blasts under the wheels and under the centerline, in addition to ballistic protection of the operator cab. The system is designed to be repairable in the field after a mine blast.

The MPCV provides deployed forces with an effective and reliable blast-protected vehicle capable of interrogating and classifying suspected explosive hazards, including IEDs. The MPCV has an articulating arm with a digging/lifting attachment and camera to remotely interrogate a suspected explosive hazard and allow the crew to confirm, deny, and/or classify the explosive hazard. It provides a blast-protected platform to transport Soldiers and allow them to dismount to mark and/or neutralize explosive hazards.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY07:** Milestone C, type classification-generic, and low-rate initial production (LRIP) for VMMD
- **1QFY08:** Milestone C, type classification-generic, and LRIP for MMPV
- **1QFY08:** Milestone C, type classification-generic, and LRIP for MPCV

PROJECTED ACTIVITIES

MMPV:

- **4QFY11:** Full materiel release/type classification standard and full-rate production decision
- **1QFY12:** First unit equipped

MPCV:

- **4QFY11:** Full materiel release/type classification standard and full-rate production decision
- **1QFY12:** First unit equipped

VMMD:

- **1QFY11:** Full materiel release/type classification standard and full-rate production decision
- **1QFY12:** First unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Mine Protection Vehicle Family (MPVF)

FOREIGN MILITARY SALES

MPCV:

United Kingdom

VMMD:

Canada

CONTRACTORS

MMPV:

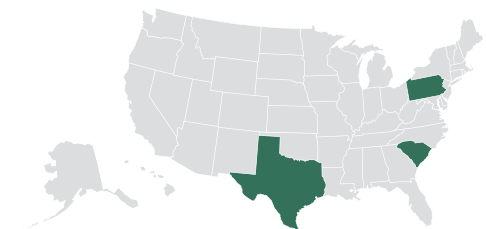
BAE Systems (York, PA)

MPCV:

Force Protection Industries, Inc.
(Ladson, SC)

VMMD:

Critical Solutions International, Inc.
(Dallas, TX)



Mine Resistant Ambush Protected Vehicles (MRAP)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides tactical mobility for warfighters with multimission platforms capable of mitigating the effects of improvised explosive devices (IEDs), underbody mines, and small arms fire threats.

DESCRIPTION

The Joint Mine Resistant Ambush Protected (MRAP) Vehicle Program (JMVP) is a multi-service program currently supporting the Army, Navy, Marine Corps, Air Force, and the U.S. Special Operations Command. The program procures, tests, integrates, fields, and supports highly survivable vehicles that provide protection from IEDs and other threats. These four- to six-wheeled vehicles are configured with government furnished equipment to meet unique warfighting requirements. Vehicle combat weights (fully loaded without add-on armor) range from approximately 34,000 to

60,000 pounds, with payloads ranging from 1,000 to 18,000 pounds. Key components (e.g., transmissions, engines) vary between vehicles and manufacturers, but generally consist of common commercial and military parts.

Four categories of vehicles support the following missions:

- **Category (CAT) I:** Carries four to six passengers. Designed to provide increased mobility and reliability in rough terrain.
- **CAT II:** Multimission operations (such as convoy lead, troop transport, and ambulance). Carries 10 passengers.
- **CAT III:** Mine/IED clearance operations and explosive ordnance disposal (EOD); carries six passengers, plus specialized equipment to support EOD operations; the Force Protection Industries Buffalo is the only CAT III variant. This is the largest MRAP vehicle.

- **MRAP All Terrain Vehicle (M-ATV):** Carries four Soldiers plus a gunner. Supports small-unit combat operations in complex and highly restricted rural, mountainous, and urban terrains. The M-ATV provides better overall mobility characteristics than the original CAT I, II, and III MRAP vehicles yet retains the same survivability threshold.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

MRAP vehicles are equipped with multiple GFE items, including communications equipment, mine and IED counter-measure equipment, in addition to weapons and crew protection systems.

PROGRAM STATUS

- **3QFY07–1QFY11:** Produce and field MRAP vehicles to Army, Marine Corps, Air Force, Navy, U.S. Special Operations and foreign military sales customers

- **1QFY08–2QFY09:** Upgrading vehicles to meet emerging threats, enhance survivability, vehicle mobility, and improve automotive performance by incorporating engineering changes in current production, planned orders, and fielded vehicles
- **2QFY08:** Initiated capabilities insertion program to provide enhanced rocket-propelled grenade protection, integration of remote weapon system, increased vehicle power and enhanced command, control, communications, computers, and intelligence capability

PROJECTED ACTIVITIES

- **1QFY11:** Production and fielding of MRAP vehicles complete based on current requirements
- **2QFY11:** Begin modernization of MRAP vehicles returning from theater in preparation for transition to enduring force requirements

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Mine Resistant Ambush Protected Vehicles (MRAP)

FOREIGN MILITARY SALES

Canada, France, Italy, United Kingdom

CONTRACTORS

BAE Systems Land & Armaments, Ground Systems Division (York, PA)

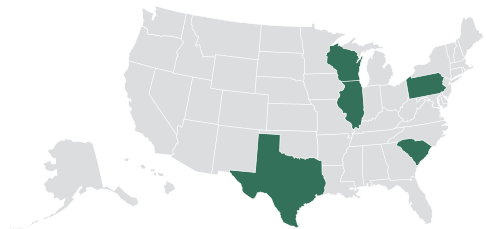
BAE-TVS (Sealy, TX)

Force Protection Industries, Inc. (Ladson, SC)

General Dynamics Land Systems, Canada (Ontario, Canada)

Navistar Defense (Warrenville, IL)

Oshkosh Corp. (Oshkosh, WI)



Mobile Maintenance Equipment Systems (MMES)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Repairs battle-damaged combat systems on site and up through the direct support level in the forward battle area.

DESCRIPTION

The Mobile Maintenance Equipment System (MMES) employs a system-of-systems approach to provide two-level maintenance capability to the warfighter. Five interconnected maintenance systems distributed throughout the Army at multiple levels and echelons provide a holistic repair capability in all environments.

Shop Equipment Contact Maintenance (SECM) is a first responder providing immediate field-level maintenance and repair to battle-damaged ground support and aviation equipment. The SECM has industrial quality tools, light duty cutting and welding equipment, and an on-board compressor and power inverter. The system consists of a fabricated

enclosure mounted on a M113/M1152 High Mobility Multi-Purpose Wheeled Vehicle (HMMWV).

Forward Repair System (FRS) is a high-mobility, forward maintenance and repair system. The FRS places industrial-grade power tools, diagnostic test equipment, 35 kW generator, and heavy lift capability in one package. The FRS is configured with a 5.5 ton lift capacity with a 14 foot radius crane capable of removing and replacing major components on all models of military vehicles. Mounted to a flat rack, it is transported by Palletized Load System (PLS) trucks in Heavy Brigades, or by the Heavy Expanded Mobility Tactical Truck Load Handling System (HEMTT-LHS) in the Stryker Brigade Combat Teams.

Standard Automotive Tool Set (SATS) provides the warfighter a common tool set with the capability to perform field-level maintenance at all levels of materiel system repairs. The SATS includes a Base Tool Set and Field Maintenance Modules (FMMs) that allow the system to be tailored to support heavy, medium, and light combat units. SATS is transported by International

Organization for Standardization 8x8x20 containers that can be mounted on a flat rack or a trailer. The system contains an electric power generator, Environmental Control Unit (ECU), Signal Entry Panel (SEP), ergonomic storage of a complete tool load of lifetime warranted industrial quality tools. SATS has communication capability that allows data and voice connections for Global Combat Support Systems–Army (GCSS-A). SATS is transported (towed) by a tactical cargo truck from the Family of Medium Tactical Trucks (FMTV).

Hydraulic System Test and Repair Unit (HSTRU MX3) is designed to perform diagnostic testing and repair of hydraulic systems. HSTRU is capable of transporting and assembling hoses, tubes and fitting components, and fabricating industry standard hoses with crimping technology. HSTRU is trailer mounted, integrated, and transportable in a standardized enclosure that is capable of rapid deployment.

Shop Equipment Welding (SEW) provides a full spectrum of welding capabilities, and supports two-level maintenance utilizing the only qualified Welders (44B)

in the Army. Repairs may be performed in all weather, climatic, and light conditions. The SEW integrates commercial off-the-shelf and NDI components in an enclosure mounted on an M103A3 Trailer.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current–1QFY10:** SEW production and fielding
- **Current:** SECM production and fielding
- **Current:** FRS production and fielding
- **Current:** SATS production and fielding
- **3QFY10:** SEW Reset program established

PROJECTED ACTIVITIES

Production and Fielding

- **1QFY11:** HSTRU first unit equipped
- **2QFY11:** FRS
- **Ongoing:** SECM
- **Ongoing:** SATS
- **Ongoing:** SEW Reset program continues

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Mobile Maintenance Equipment Systems (MMES)

FOREIGN MILITARY SALES

None

CONTRACTORS

FRS and SECM:

Rock Island Arsenal (Rock Island, IL)

Snap-on Industrial (Crystal Lake, IL)

SATS:

Kipper Tool Company (Gainesville, GA)

AAR Mobility Systems (Cadillac, MI)

MCT Industries, Inc. (Albuquerque, NM)

HSTRU:

Mandus Group (Rock Island, IL)

FRS
Forward
Repair System



SECM
Shop Equipment
Contact Maintenance

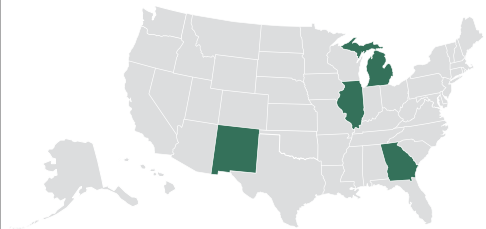
SEW
Shop Equipment
Welding



HSTRU
Hydraulic System
Test and Repair Unit



SATS
Standard Automotive
Tool Set



Modular Fuel System (MFS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides the ability to rapidly establish fuel distribution and storage capability at any location regardless of materiel handling equipment availability.

DESCRIPTION

The Modular Fuel System (MFS), formerly known as the Load Handling System Modular Fuel Farm (LMFF), is transported by the Heavy Expanded Mobility Tactical Truck–Load Handling System (HEMTT-LHS) and the Palletized Load System. It is composed of 14 tank rack modules (TRM) and two each of the pump and filtration modules, commonly known as pump rack modules (PRMs). Each TRM is air-transportable with a baffled, 2,500-gallon-capacity fuel storage tank and on-board storage compartments for hoses, nozzles, fire extinguishers, and grounding rods. MFS is compatible with current Army storage and distribution systems and those of other services and allied nations. The MFS's configuration can vary in size (total capacity) based on the type of force supported and is rapidly employed,

quickly set up, with the ability to operate with minimal assets and personnel.

The PRM includes a 600-gallon-per-minute (GPM) diesel engine-driven centrifugal pump, filter separator, valves, fittings, hoses, refueling nozzles, and a 25 GPM electric pump that allows fuel to be dispensed in emergency situations. The PRM has an evacuation capability that allows the hoses in the system to be purged of fuel prior to recovery and is capable of refueling both ground vehicles and aircraft.

TRMs can be used for bulk fuel distribution in concert with HEMTT Tankers. The HEMTT Tanker can transfer fuel to and from the TRM and can provide retail operations. The TRM doubles the HEMTT capacity. MFS is capable of receiving, storing, filtering, and issuing all kerosene based fuels.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

MFS TRM is interdependent with HEMTT Palletized Load System (PLS) and LHS for transportation

PROGRAM STATUS

- **3QFY08:** PEO CS&CSS approved MFS HEMTT/TRM interface
- **1QFY09:** ASA (ALT) signed un-termination letter restoring the MFS as an active program
- **2QFY09:** Complete MFS-TRM interface hardware
- **3QFY09:** Complete MFS-TRM interface logistics
- **1QFY10:** MFS-TRM initial operational test

PROJECTED ACTIVITIES

- **1QFY11:** MFS-TRM full materiel release, full-rate production, type classification standard
- **1QFY11:** MFS-TRM production contract award
- **3QFY12:** MFS-PRM full materiel release, full-rate production, type classification standard and production contract award

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Modular Fuel System (MFS)

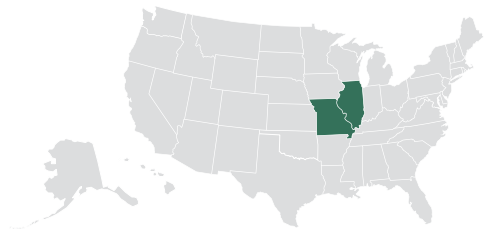
FOREIGN MILITARY SALES

None

CONTRACTORS

DRS Sustainment Systems, Inc. (St. Louis, MO)

E.D. Etnyre and Co. (Oregon, IL)



Mortar Systems

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides enhanced lethality, accuracy, responsiveness, and crew survivability while reducing the logistics footprint.

DESCRIPTION

The Mortar Fire Control System (MFCS)-equipped mortar systems provide organic, indirect fire support to the maneuver unit commander. Mortars are employed in light and heavy forces, with towed and tracked carrier versions.

The Army uses three variants of 120mm mortar systems, and all have been qualified and are being equipped with MFCS. All of the mortar systems fire a full family of ammunition including high-explosive, infrared and visible light illumination, smoke, and training. The M120 120mm Towed Mortar System is transported by the M1101 trailer and is emplaced and displaced using the M326 “quick stow” system. The mounted variants are the M121 120mm mortar, used on the M1064A3 Mortar Carrier (M113 variant), and the 120mm Recoiling Mortar System, used on the M1129 Stryker Mortar Carrier.

Lightweight variants of the M252 81mm Mortar System and M224 60mm Mortar System have been qualified and are in production. Both systems provide high-rate-of-fire capability and are man-portable.

The M95/M96 Mortar Fire Control System–Mounted (MFCS-M), used on the M1064A3 and M1129, and the M150/M151 Mortar Fire Control System–Dismounted (MFCS-D), used with the M120, combine a fire control computer with an inertial navigation and pointing system, allowing crews to fire in under a minute, greatly improving mortar lethality, accuracy and crew survivability.

The M32 Lightweight Handheld Mortar Ballistic Computer (LHMBC) has 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.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS)

Other Major Interdependencies

M95/M96 MFCS-M and M150/M151 MFCS-D

PROGRAM STATUS

- **1QFY09–1QFY10:** MFCS fielded to two Heavy Brigade Combat Teams (HBCTs) and nine HBCTs reset
- **1QFY09–1QFY10:** LHMBC fielded to seven Infantry BCTs, four Special Forces groups, and 16 (IBCTs) reset
- **1QFY09–1QFY10:** Mortar weapons fielded to numerous IBCT, HBCT, Stryker BCT, and Special Forces groups
- **1QFY09–1QFY10:** Continue production and fielding of 60mm, 81mm, and 120mm mortar systems
- **2QFY09–1QFY10:** Production and initial fielding of M150/M151 MFCS-D
- **3QFY09:** Full materiel release (FMR) of MFCS-D
- **4QFY09:** FMR of M326 “quick stow” system

PROJECTED ACTIVITIES

- **2QFY09–4QFY11:** Complete initial fielding of MFCS-M
- **1QFY10–4QFY12:** Continue fielding of M326 “quick stow” system
- **2QFY12:** Complete production and fielding of M32 LHMBCs

ACQUISITION PHASE

Technology Development

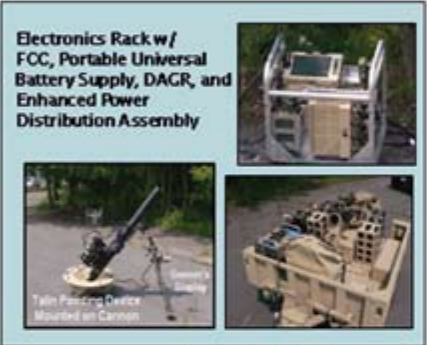
Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Mortar Fire Control System (MFCS-Mounted)



Motor Fire Control System (MFCS-Dismounted)



Mounted Weapon System Production



M1064A3 Mortar Carrier



Mortar Systems

FOREIGN MILITARY SALES

Afghanistan, Australia

CONTRACTORS

60mm and 81mm Mortar Bipod

Production:

MaTech (Salisbury, MD)

60mm and 81mm Baseplate

Production:

AMT (Fairfield, NJ)

MFCS-D and MFCS-M production, fielding, and installation:

Elbit Systems of America (Fort Worth, TX)

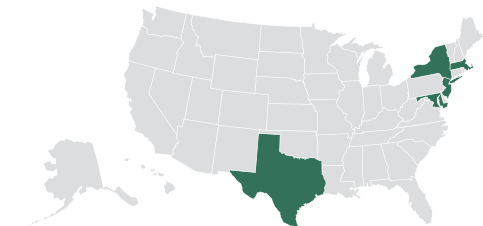
M32 LHMBC (R-PDA):

General Dynamics C4 Systems, Inc. (Taunton, MA)

120mm, 81mm, and 60mm cannons, 120mm baseplates:

Watervliet Arsenal (Watervliet, NY)

Mortar	Range (meters)	Weight (pounds)	Rate of Fire (rounds per minute)	Crew	Ammunition
M120/ M121 120mm	7240	319	16 for the first minute 4 sustained	4 M121 carrier-mounted 5 M120 towed	High explosive (HE) (M934A1), white phosphorus smoke (M929), illumination (visible light, M930 and infrared [IR], M983), M933A1 (operational training), and full-range practice (FRP) (M931)
M252 81mm	5935	90	30 first two minutes 15 sustained	3	HE (M821A2), red phosphorus smoke (M819), illumination (visible light, M853A1 and IR, M816), M889A2 (operational training), and FRP (M879)
M224 60mm	3489	46.5 (conventional), 18.0 (handheld)	30 first four minutes 20 sustained	3	HE (M720A1), WP smoke (M722A1), illumination (visible light, M721 and IR, M767), M768 (operational training), and FRP (M769)



Mounted Soldier System (MSS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enhances the survivability, situational awareness, lethality, mobility, and sustainability for all combat vehicle crewmen and other Soldiers performing mounted operations.

DESCRIPTION

The Mounted Soldier System (MSS) is an evolutionary program with identified increments. Increment I provided the Mounted Warrior Helmet-Mounted Display and Increment II will augment current and future capabilities under the MSS Program. MSS will provide the combat vehicle crew members increased capabilities to conduct offensive and defensive operations.

The MSS consists of a heads-up display, cordless communications, micro-climatic cooling, and force protection items. These subsystems will provide

platform commanders and vehicle crew members increased effectiveness on the network-centric battlefield in areas of command and control (C2), situational awareness, communications, and force protection. MSS also provides improved integration and systems engineering to enhance capability synergy and allow crewmen to better perform their functions in the confined spaces of combat vehicles.

Cordless Communications Capabilities:

The Cordless Communications Capabilities provides increased safety and mission performance to the platform's crew with the addition of a wireless connection capability to the vehicle's intercom and radios. It allows the crew to communicate by voice over the platform's intercom system when mounted or dismounted within 300 meters of their platform. The system automatically detects when a crewman becomes disconnected from the intercom system and allows the disconnected crewman to continue to have voice communication with the crew.

Microclimate Cooling System

The Microclimate Cooling System is integrated into the platform and features a cooling vest worn by the Soldier. This will reduce crewman heat stress and provide increased comfort during operations in hot environments.

Soldier Force Protection System Capabilities:

Soldier safety is enhanced with the Improved Combat Vehicle Crewman Coverall, Flame Resistant Army Combat Uniform (FRACU), Fire Resistant Environmental Ensemble (FREE), flame-resistant and moisture-wicking undergarments, ballistic and laser eye protection, and flame-resistant hand, face, and foot protection. Soldier effectiveness is improved with the ambidextrous individual weapon holster, an integrated CVC Helmet system, and a lighter-weight, multilayer, improved ballistic protection body armor system

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Vehicle for power and C2

PROGRAM STATUS

- **3Q–4QFY06:** DOTMLPF assessment of Mounted Warrior conducted
- **3QFY07–3QFY08:** Mounted Warrior deployed with 4th Battalion, 9th Infantry Regiment in Operation Iraqi Freedom
- **1QFY08:** Milestone B for MSS
- **2QFY09:** MSS contracts awarded

PROJECTED ACTIVITIES

- **4QFY10–3QFY11:** Developmental test, limited user test
- **4QFY11:** MSS Milestone C
- **4QFY12:** MSS full-rate production begins

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

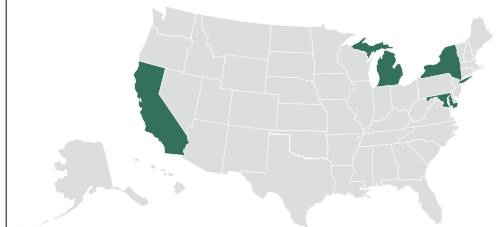
Mounted Soldier System (MSS)

FOREIGN MILITARY SALES

None

CONTRACTORS

Carleton Technologies Inc.
 (Orchard Park, NY)
 Rockwell Collins (Carlsbad, CA)
 Thales (Clarksburg, MD)
 BAE Systems (Santa Clara, CA)
 General Dynamics Land Systems (Sterling Heights, MI)



Movement Tracking System (MTS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Tracks the location of vehicles and logistics assets, communicates with vehicle operators, and redirects missions on a worldwide, near real-time basis during peacetime operations and war.

DESCRIPTION

The Movement Tracking System (MTS) is a low-cost solution designed for the Army and its vehicle operators for tracking vehicles and communicating while on and off the road. MTS is a mobile satellite two-way messaging system that is totally wireless, from the MTS-equipped vehicles to the control station. The mobile unit configuration of the system is mounted on a unit's vehicles, while the control station configuration, in a fixed location, monitors vehicle locations. Both configurations use the same basic communications software and

hardware, although the control station uses a computer with a larger display and faster processor. Communication between the two is provided by a commercial satellite vendor that enables units to send and receive traffic over the horizon, anytime, anywhere.

MTS worldwide satellite-based communications coverage allows the transportation coordinator to communicate with the driver of any truck, regardless of location, without having to put up antennas or involve more Soldiers. MTS has been adapted to incorporate radio frequency technology and an upgraded military global positioning system capability, using multiple satellites. The system is currently providing in-transit visibility for near-real-time mission redirects of combat service support vehicles supporting the objective force on the digitized battlefield.

MTS supports vehicle movement and redirection based on fluid changes in battlefield tempo and enemy positions. The system will provide vehicles and watercraft visibility wherever they may be deployed throughout the

world. Objectively, all common user logistic transport vehicles, selected combat support and combat service support tactical wheeled vehicles, and watercraft will be fitted with MTS mobile units. MTS will provide watercraft transportation unit commanders with the capability to track and communicate with assets employed across the spectrum of operations such as established ports, logistics over-the-shore, intra-coastal, inland waterways, and amphibious operations.

When employed within the distribution system, MTS will improve the effectiveness and efficiency of limited-distribution assets, provide the ability to reroute supplies to higher priority needs, enable the avoidance of identified hazards, and inform operators of unit location changes. In addition, planned enhancements of MTS (referred to as Block II MTS enhancements) such as MTS's interface with embedded equipment diagnostic and prognostic systems, will provide accurate data that will aid fleet maintenance and improve availability and overall service life. MTS provides

the capability to link ground level operators conducting missions and commanders/managers that plan, direct, and control operations.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **4QFY08:** Continued software development for MTS-Enhanced Software (ES)
- **1QFY09:** Conducted testing of new software upgrades
- **2QFY09:** Develop MTS follow-on procurement strategies
- **2QFY09:** Begin testing MTS-ES software
- **3QFY09:** Continue testing MTS-ES software

PROJECTED ACTIVITIES

- **1QFY11:** Field MTS-ES software
- **1QFY11:** MTS follow-on procurement
- **1QFY12:** Transition to Joint Battle Command Platform

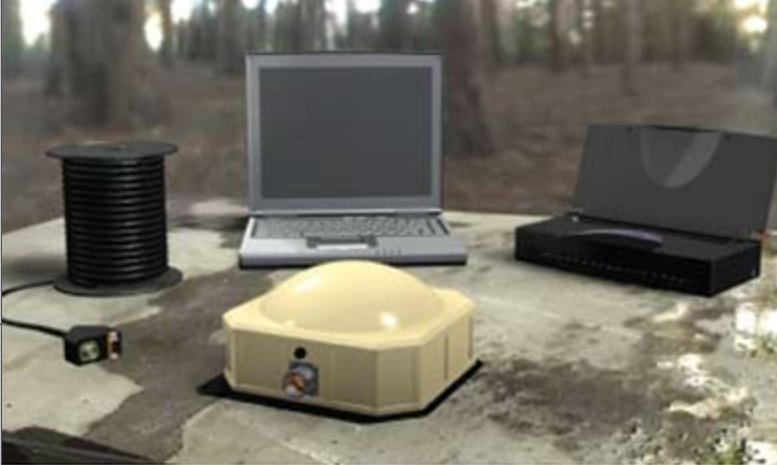
ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Transceiver
(MT 2012-RS)
Step 1



Ruggedized Laptop
Step 2

Movement Tracking System (MTS)

FOREIGN MILITARY SALES

None

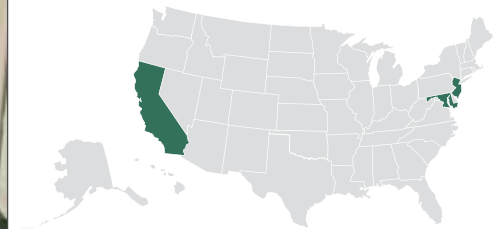
CONTRACTORS

System integrator:

COMTECH Mobile Datacom
(Germantown, MD)

Software development:

Northrop Grumman (Redondo Beach, CA)
via Force XXI Battle Command
Brigade and Below (FBCB2) contract
(Fort Monmouth, NJ)



Multiple Launch Rocket System (MLRS) M270A1

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides coalition ground forces with highly lethal, responsive, and precise long-range rocket and missile fires that defeat point and area targets in both urban/complex and open terrain with minimal collateral damage, via a highly mobile, responsive multiple launch system.

DESCRIPTION

The combat-proven Multiple Launch Rocket System (MLRS) M270A1 is a mechanized artillery weapon system that provides the combat commander with round-the-clock, all-weather, lethal, close- and long-range precision rocket and missile fire support for Joint forces, early-entry expeditionary forces, contingency forces, and modular fire brigades supporting Brigade Combat Teams.

The M270A1 is an upgraded version of the M270 launcher. The program entailed the concurrent incorporation of the Improved Fire Control System (IFCS) and the Improved Launcher Mechanical System (ILMS) on a rebuilt M993 Carrier (derivative of

the Bradley Fighting Vehicle). With the IFCS, the M270A1 can fire future munitions and the ILMS reduces system load and reload times. The M270A1 provides responsive, highly accurate and extremely lethal, surface-to-surface, close- to long-range rocket and missile fires from 15 kilometers to a depth of 300 kilometers. It carries and fires either two launch pods containing six MLRS rockets each or two Army Tactical Missiles, and is capable of firing all current and future MLRS family of rockets and missiles. It operates with the same MLRS command, control, and communications structure and has the same size crew as the M142 High Mobility Artillery Rocket System (HIMARS).

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS)

Other Major Interdependencies

M993 Bradley derivative chassis

PROGRAM STATUS

- **2QFY10:** Completed fleet modernization with Auxiliary Power Unit/Environmental Control Unit upgrades
- **4QFY10:** Completed M270A1 launcher overhaul pilot program

PROJECTED ACTIVITIES

- **Continue:** Provide support to fielded units/units in combat
- **Continue:** Provide sustainment and support activities for MLRS strategic partners and foreign military sales customers
- **Continue:** Field Driver Vision Enhancement and Blue Force Tracker Mods
- **Continue:** M270A1 launcher overhaul program

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Multiple Launch Rocket System (MLRS) M270A1

FOREIGN MILITARY SALES

M270 and M270A1:

Bahrain, Denmark, Egypt, Finland, France, Germany, Greece, Israel, Italy, Japan, Korea

M270 and M270B1:

Norway, Turkey, United Kingdom

CONTRACTORS

Prime and Launcher:

Lockheed Martin (Dallas, TX; Camden, AR)

Chassis:

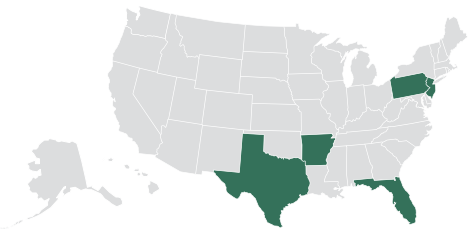
BAE Systems (York, PA)

Improved Weapons Interface Unit:

Harris Corp. (Melbourne, FL)

Position Navigation Unit:

L-3 Communications Space & Navigation
(Budd Lake, NJ)



NAVSTAR Global Positioning System (GPS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides real-time position, velocity, and timing data to tactical and strategic organizations.

DESCRIPTION

The NAVSTAR Global Positioning System (GPS) is a space-based, Joint-service navigation program led by the Air Force, which distributes position, velocity, and timing data. The GPS has three segments: a space segment (nominally 24 satellites), a ground control segment, and a user equipment segment. User equipment consists of receivers configured for handheld, ground, aircraft, and watercraft applications. Military GPS receivers use the Precise Positioning Service (PPS) signal to gain enhanced accuracy and signal protection not available to commercial equipment. GPS receivers in the Army today are: the Precision Lightweight GPS Receiver (PLGR), with more than 100,000 in handheld, installed, and integrated applications; and the Defense Advanced GPS Receiver (DAGR), with more than 183,000 as handheld receivers and 67,000 distributed for platform installations

to date for a total of 250,000 DAGRs fielded. In addition, GPS user equipment includes a Ground-Based GPS Receiver Applications Module (GB-GRAM). Over 90,000 GB-GRAMs have been procured and provide embedded PPS capability to a variety of weapon systems. The Army represents more than 80 percent of the requirement for user equipment.

DAGR

Size: 6.37 x 3.4 x 1.56 inches

Weight: 1 pound; fits in a two-clip carrying case that attaches to load-bearing equipment

Frequency: Dual (L1/L2)

Battery Life: 19 hours (4 AA batteries)

Security: Selective availability anti-spoofing module

Satellites: All-in-view

GB-GRAM

Size: 0.6 x 2.45 x 3.4 inches

Weight: 3.5 ounces

Frequency: Dual (L1/L2)

Security: Selective availability anti-spoofing module

Satellites: All-in-view

SYSTEM INTERDEPENDENCIES

In this Publication

PATRIOT Advanced Capability–Three (PAC-3), Excalibur (XM982), Paladin/Field Artillery Ammunition Support Vehicle (FAASV)

Other Major Interdependencies

Blue Force Tracking, mobile ballistic computers, laser rangefinders, movement tracking systems, and several unmanned aerial vehicle systems

PROGRAM STATUS

- **1QFY05–4QFY10:** Continue DAGR fieldings; continue demilitarization and disposal of obsolete PLGR

PROJECTED ACTIVITIES

- **1QFY11–4QFY17:** Continue DAGR fieldings; DAGR 3.7 introduction; GB-GRAM 3.7 introduction

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

NAVSTAR Global Positioning System (GPS)

FOREIGN MILITARY SALES

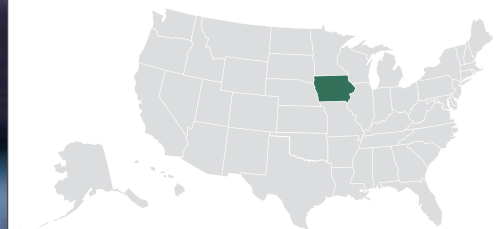
PPS-capable GPS receivers have been sold to 41 authorized countries

CONTRACTORS

DAGR/GB-GRAM Acquisition and PLGR Support:

Support:

Rockwell Collins (Cedar Rapids, IA)



Nett Warrior (NW)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides unparalleled situational awareness (SA) and understanding to the dismounted leader (team leader and above) allowing for faster, more accurate decisions in the tactical fight and connecting the dismounted Soldier to the network.

DESCRIPTION

The Nett Warrior (NW) (formally Ground Soldier System), named for Medal of Honor recipient Colonel Robert B. Nett, is an integrated dismounted Soldier SA system for use during combat operations. It consists of a hands-free display to view information; a computer to process information and populate the screen; an interface device for user-screen interaction; a system power source; a software operating system for system functionality; tactical applications and battle command; and a networked radio transmitter/receiver to send/receive information and voice communications.

In the Army's Brigade Combat Teams (BCTs), NW increments will provide necessary SA, connecting dismounted

leaders to the network. Soldier position location information from the Rifleman Radio capability is also added to the network through interoperability with the NW system. NW provides an integrated, dismounted leader the SA system for use during combat operations, allowing for faster and more accurate decisions in the tactical fight while reducing fratricide. This translates into Soldiers being at the right place, at the right time, with the right equipment making them more effective, more lethal, and more survivable in the execution of their combat mission.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Battle Command Product Line, Core Soldier System equipment, Enhanced Position Location Reporting System Radio, Joint Tactical Radio System Small Form Fit-B (SFF-B), Rifleman Radio

PROGRAM STATUS

- **1QFY09:** Release of request for proposal
- **2QFY09:** Milestone A approval
- **3QFY09:** Award of three competitive prototyping contracts
- **3QFY09:** System preliminary design review (three competitors)
- **1QFY10:** System critical design review (three competitors)
- **3QFY10–4QFY10:** Developmental test
- **4QFY10:** Capability development document Joint-validation

PROJECTED ACTIVITIES

- **4QFY10–1QFY11:** Limited user tests (three competitors)
- **1QFY11:** Capability production document Joint-validation
- **2QFY11:** Milestone C
- **3QFY11:** Low-rate initial production contract award

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Nett Warrior (NW)

FOREIGN MILITARY SALES

To be determined

CONTRACTORS

Refinement Systems:

Rockwell Collins (Cedar Rapids, IA)

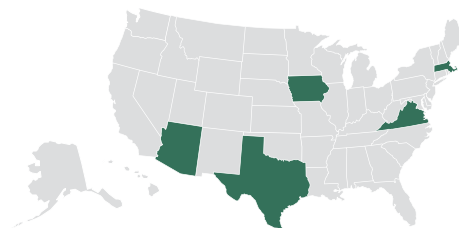
Raytheon (McKinney, TX)

General Dynamics (Scottsdale, AZ)

Support Services:

Engility (Billerica, MA)

NCl Information Systems (Reston, VA)



Night Vision Thermal Systems—Thermal Weapon Sight (TWS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables the Soldier to detect and engage targets, day or night, in all weather and visibility-obscured conditions.

DESCRIPTION

The Thermal Weapon Sight (TWS) family is a group of advanced infrared devices for both in-line and stand-alone use. Its technologies include multi-band fused sensors and rapid target acquisition capabilities. The AN/PAS-13 TWS gives Soldiers with individual and crew served weapons the capability to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants, day or night. The TWS systems use uncooled, forward-looking infrared technology and provide a standard video output for training, image transfer, or remote viewing. TWS systems are lightweight and

mountable to a weapon rail. They operate to the maximum effective range of the weapon.

The TWS family comprises three variants, each of which is silent, lightweight, compact, durable, and battery-powered. They include:

AN/PAS-13(V)1 Light Weapon Thermal Sight (LWTS) for the M16 and M4 series rifles and carbines, as well as the M136 Light Anti-Armor Weapon

- **Weight:** 1.95 pounds
- **Magnification:** 1.55x
- **Field of view:** ≥ 15 degrees
- **Operational time:** 5 hours
- **Power:** four lithium AA batteries

AN/PAS-13(V)2 Medium Weapon Thermal Sight (MWTS) for the M249 Squad Automatic Weapon and M240B series medium machine guns

- **Weight:** 2.9 pounds
- **Magnification:** 5x/1.66x (narrow/wide)

- **Field of view:** ≥ 6 degrees/18 degrees (narrow/wide)
- **Operational time:** 6.5 hours
- **Power:** six lithium AA batteries

AN/PAS-13(V)3 Heavy Weapon Thermal Sight (HWTS) for the squad leader's weapon M16 and M4 series rifles and carbines, M24 and M107 sniper rifles, and M2 HB and MK19 machine guns

- **Weight:** 3.9 pounds
- **Magnification:** 10x/3.3x (narrow/wide)
- **Field of view:** ≥ 3 degrees/9 degrees (narrow/wide)
- **Operational time:** 6.5 hours
- **Power:** six lithium AA batteries

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY98:** Type classification
- **FY99:** First unit equipped
- **FY10:** Fielded to units supporting Operation Enduring Freedom and Operation Iraqi Freedom
- **FY10:** Began 17 micron technology validation testing; 17 micron technology allows production of a LWTS clip-on and reduces power and weight in the MWTS and HWTS

PROJECTED ACTIVITIES

- **FY11:** Continue to support and field in accordance with Headquarters Department of the Army G8 guidance
- **Continue:** 17 micron validation testing

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



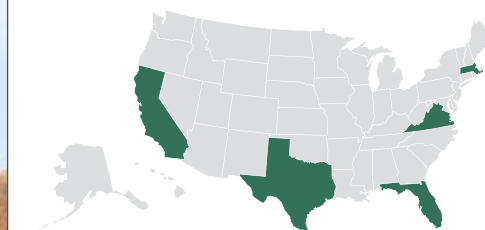
Night Vision Thermal Systems– Thermal Weapon Sight (TWS)

FOREIGN MILITARY SALES

Deputy Assistant Secretary of the Army
Defense Exports and Cooperation (DASA
DE&C)

CONTRACTORS

BAE Systems (Lexington, MA;
Manassas VA)
DRS Optronics (Dallas, TX; Melbourne, FL)
Raytheon (Dallas, TX; Goleta, CA;
McKinney, TX)



Non-Intrusive Inspection Systems (NIIS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Protects U.S. forces and critical warfighting materiel by inspecting cars, trucks, or cargo containers for the presence of explosives, weapons, drugs, or other contraband with nuclear (gamma) and X-ray technology.

DESCRIPTION

The Non-Intrusive Inspection Systems (NIIS) program consists of commercial off-the-shelf (COTS) products that are employed within a layered force protection system that includes security personnel trained to maintain situational awareness, aided by a range of other products including military working dogs, under-vehicle scanning mirrors, and handheld or desktop trace explosive detectors. The NIIS produce a graphic image from which a trained

operator can “look into” places such as false compartments that other systems cannot see.

NIIS currently include a variety of products with differing characteristics that are added to the Army commander’s “tool box.” They include mobile, rail-mounted but re-locatable, and fixed-site characteristics. The primary systems employed are as follows:

The **Mobile Vehicle and Cargo Inspection System (MVACIS)** is a truck-mounted system that utilizes a nuclear source that can penetrate approximately 6.5 inches of steel. It can be employed in static locations or moved rapidly between access control points to provide protection where it is most needed.

The **Re-locatable Vehicle and Cargo Inspection System (RVACIS)** is a rail-mounted system that utilizes the same nuclear source as the MVACIS. It operates on rails and is employed in static locations or moved within 24 hours to locations where prepared

use of the rail system eliminates the requirement to maintain a truck platform and the presence of an overhead articulated arm that can be struck and damaged by vehicles being scanned.

The **Militarized Mobile VACIS (MMVACIS)** uses the same gamma source as the other VACIS products but is mounted on a High Mobility Multipurpose Wheeled Vehicle. MMVACIS provides a capability that other NII systems do not—off-installation external vehicle checkpoints in remote locations.

The **Z-Backscatter Van (ZBV)** is a van-mounted system that utilizes backscatter X-ray technology. While it can penetrate only approximately one-quarter inch of steel, it can be employed in static locations where room is limited and scanning of cars, larger vehicles, or containers with smaller, less complex loads is expected.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **1QFY10:** MMVACIS fielding
- **4QFY10:** ZBV procurement and fielding

PROJECTED ACTIVITIES

- **2QFY11:** Final engineering change proposal contract to be awarded

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

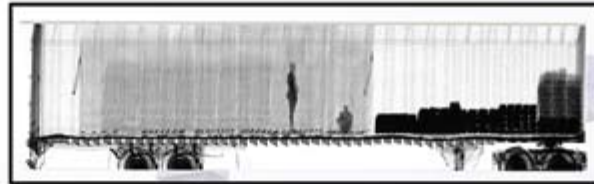
Production & Deployment

Operations & Support

Non-Intrusive Inspection Systems (NIIS)



ZBV BACKSCATTER



RVACIS[®]
MOBILE VACIS



MMVACIS[®]
MILITARY MOBILE VACIS



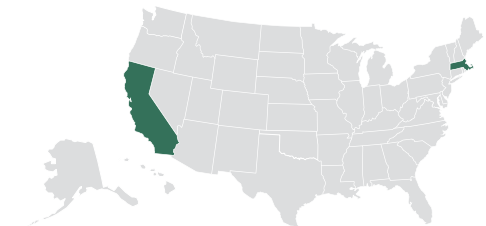
MVACIS[®]
RELOCATABLE VACIS

FOREIGN MILITARY SALES

None

CONTRACTORS

- American Science & Engineering, Inc.
(Billerica, MA)
- Rapiscan Systems (Torrance, CA)
- Science Applications International Corp.
(SAIC) (San Diego, CA)



Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)–Stryker Sensor Suite

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Performs nuclear, biological, and chemical (NBC) reconnaissance; and locates, identifies, marks, samples, and reports NBC contamination on the battlefield.

DESCRIPTION

The Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)–Stryker 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 (CBMS), Automatic Chemical Agent Detector Alarm (ACADA), AN/VDR-2 Radiac

Detector, AN/UDR-13 Radiac Detector, Joint Biological Point Detection System (JBPDS), and at a distance, through the use of the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD). It automatically integrates contamination information from detectors with input from onboard navigation and meteorological systems and transmits digital NBC warning messages through the vehicle's command and control equipment to warn follow-on forces. NBCRV can collect samples for follow-on analysis.

SYSTEM INTERDEPENDENCIES

In this Publication

Joint Biological Point Detection System (JBPDS)

Other Major Interdependencies

ACADA, AN/UDR-13 Radiac Detector, CBMS, Chemical Vapor Sampler System (CVSS), JSLSCAD, Nuclear Biological Chemical Sensor Processing Group (NBCSPG)

PROGRAM STATUS

- **FY09–10:** Additional low-rate initial production
- **FY10:** Initial operational test and evaluation

PROJECTED ACTIVITIES

- **FY11:** Full-rate production

ACQUISITION PHASE

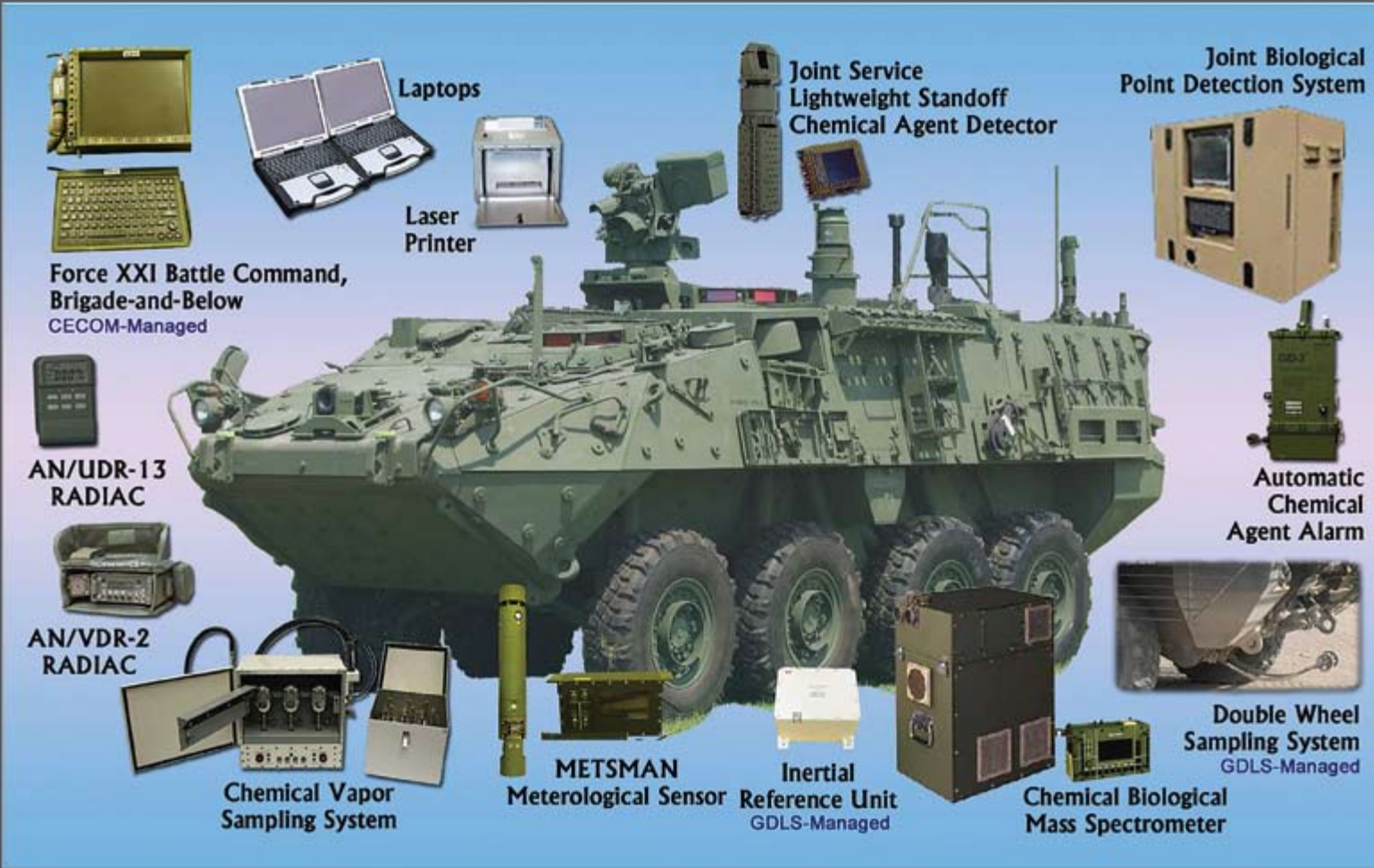
Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)– Stryker Sensor Suite



FOREIGN MILITARY SALES

None

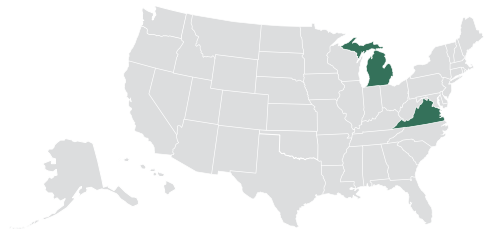
CONTRACTORS

Prime Vehicle:

General Dynamics Land Systems
(Sterling Heights, MI)

Sensor Software Integrator:

CACI Technologies (Manassas, VA)



One Semi-Automated Forces (OneSAF)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides simulation software that supports constructive and virtual training, computer-generated forces, and mission rehearsal designed for brigade-and-below, combat, and non-combat operations.

DESCRIPTION

One Semi-Automated Forces (OneSAF) is a next generation, entity-level simulation that supports both computer-generated forces and Semi-Automated Forces applications. This enables it to support a wide range of Army brigade-and-below constructive simulations and virtual simulators.

OneSAF is currently being integrated by the Synthetic Environment Core program as the replacement SAF for virtual trainers such as Aviation Combined Arms Tactical Trainer

and Close Combat Tactical Trainer. OneSAF will serve as the basis for subsequent modernization activities for simulators across the Army. OneSAF was designed to represent the modular and Future Force and provides entities, units, and behaviors across the spectrum of military operations in the contemporary operating environment. OneSAF has been crafted to be uniquely capable of simulating aspects of the contemporary 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—both combat and non-combat operations. Intelligent, doctrinally correct behaviors and improved graphical user interfaces are provided to increase the span of control for workstation operators.

OneSAF represents a full range of operations, systems, and control processes in support of simulation applications applied to advanced concepts and requirements; research, development, and acquisition; and

training, exercise, and military operations. OneSAF is designed to meet the constructive training challenges presented by transformation. With a full range of warfighter functional area representations, OneSAF displays a high fidelity environmental representation. OneSAF is a cross-domain simulation suitable for supporting training, analysis, research, experimentation, mission-planning, and rehearsal activities. It provides the latest physics-based modeling and data, enhanced data collection, and reporting capabilities.

Interoperability support is present for industry standards such as Distributed Interactive Simulation, High Level Architecture, Military Scenario Development Language, Joint Consultation Command and Control Information Exchange Data Model, and Army Battle Command System devices.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

OneSAF provides required capabilities for SE Core; OneSAF is a complementary Tier I program of E-ICBT.

PROGRAM STATUS

- **4QFY10:** OneSAF version 4.0 released
- **4QFY10:** OneSAF version 5.0 released

PROJECTED ACTIVITIES

- **2QFY11:** Release OneSAF version 5.0 (International)

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

One Semi-Automated Forces (OneSAF)

FOREIGN MILITARY SALES

Australia, Bahrain, Canada, Czech Republic, Egypt, Korea, New Zealand, United Kingdom

CONTRACTORS

A&I, M&T, ERC:

Science Applications International Corp. (SAIC) (Orlando, FL)

Integrated Environment:

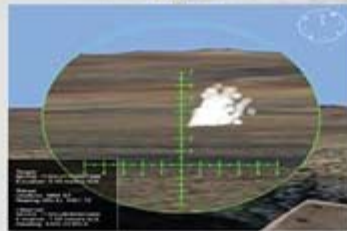
Advanced Systems Technology (Orlando, FL)

C4I Components:

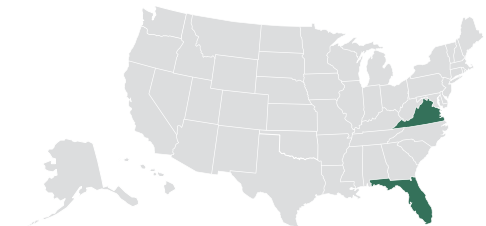
Northrop Grumman Information Systems (NGIS) (McLean, VA)

AAR/MSDE:

CAE USA (Tampa, FL)



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Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the primary indirect fire support for modular Heavy Brigade Combat Teams and armored and mechanized infantry divisions, as well as an armored ammunition resupply vehicle in support of the Paladin.

DESCRIPTION

The M109A6 (Paladin) 155mm Howitzer is the most technologically advanced self-propelled cannon system in the Army. The field artillery ammunition supply vehicle (FAASV) provides an armored ammunition resupply vehicle in support of the Paladin.

The Paladin Integrated Management (PIM) program supports the fleet management strategy for current Paladins and FAASVs by providing a low-risk and affordable life-cycle solution that addresses obsolescence,

space, weight, and power concerns and ensures long-term sustainment of the fleet through 2050.

PIM uses state-of-the art components to improve the following:

- **Survivability:** “Shoot and scoot” tactics; improved ballistic and nuclear, biological, and chemical protection on both the Howitzer and FAASV.
- **Responsive fires:** Capable of firing within 45 seconds from a complete stop with on-board communications, remote travel lock, automated cannon slew capability, and pivot steer technology.
- **Improved Survivability:** New chassis structure and armoring provisions are built in.
- **Extended range:** 30 kilometers with high-explosive (HE), Rocket-Assisted Projectile (RAP) and Excalibur Projectiles using M203 or M232/M232A1 MACS propellant.
- **Increased commonality and reliability:** Through Bradley common powertrain, track, and suspension components.

- **Non-line-of-sight cannon technology:** Common electric elevation/traverse drives gun system and electric rammer are included.

Other PIM specifications include the following:

Crew: Paladin, four; FAASV, five

Combat loaded weight: Paladin, 37 tons; FAASV, 28 tons

Paladin on-board ammo: 39 rounds

FAASV on-board ammo: 95 rounds

Rates of fire: 4 rounds per minute for first 3 minutes maximum; 1 round per minute sustained

Maximum range: HE/RAP, 22/30 kilometers

Cruising range: Paladin, 180 miles; FAASV, 180 miles

Fire Support Network: Paladin Digital Fire Control System software supports Fire Support Network

SYSTEM INTERDEPENDENCIES

Advanced Field Artillery Tactical Data System (AFATDS), Artillery Ammunition, Excalibur (XM982), Force XXI Battle Command Brigade and Below (FBCB2), Precision Guidance Kit (PGK)

PROGRAM STATUS

- **FY10:** Produced five PIM Howitzer and two FAASV prototype vehicles

PROJECTED ACTIVITIES

- **1QFY11–2QFY12:** Build two PIM Howitzer and one FAASV prototype vehicles
- **2QFY11–1QFY13:** Developmental testing
- **3QFY13:** Milestone C

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)

FOREIGN MILITARY SALES

None

CONTRACTORS

PIM Development:

BAE Systems (York, PA)

PIM SW Support/FATB/Matrix Support:

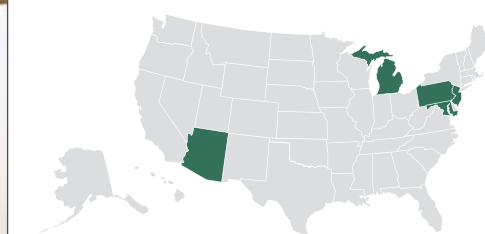
Armaments R&D Center
(Picatinny Arsenal, NJ)

Program Management Support:

Tank-Automotive and Armaments
Command (TACOM) (Warren, MI)

Testing:

Yuma Proving Ground (Yuma, AZ)
Aberdeen Test Center (Aberdeen Proving
Ground, MD)



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

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Supports combat units by performing cross-country movement of configured loads of ammunition and other classes of supply loaded on flat racks or in containers.

DESCRIPTION

The **Palletized Load System (PLS)** is a ten-wheel-drive (10x10), multi-drive truck with 16.5 ton capacity that provides the timely delivery of a high tonnage of ammunition, unit equipment, International Organization for Standardization (ISO) containers/shelters, and all classes of supply to using units and weapon systems as far forward in the maneuver battalion area as the tactical situation allows. The PLS consists of the PLS truck, PLS trailer (PLS-T), and demountable flat racks. The PLS truck is a 10x10 prime mover with an integral onboard load handling system that provides self-loading and unloading capability.

There are two PLS truck variants, the basic PLS truck (M1075) and the PLS truck with material handling crane (M1074). The system also includes

the PLS trailer (M1076), container handling unit for transporting 20-foot ISO containers, the M3/M3A1 Container Roll-in/Out Platform, and the M1/M1077A1 flat racks. The PLS has the ability to operate with a degree of mobility commensurate with the supported weapon systems, to facilitate the fighting capabilities of the supported systems and units.

The PLSA1 model is planned for fielding in 2011. It will include: independent front suspension, a new C-15 engine, the Allison 4500 transmission, J-1939 data-bus, and a cab that will be common with the HEMTTA4 and is long-term armor strategy compliant.

The **PLS Extended Service Program (ESP)** is a recapitalization program that converts high-mileage PLS trucks to 0 miles/0 hours and to the current A0 and future A1 production configurations. The trucks are disassembled and rebuilt with improved technology such as an electronically controlled engine, electronic transmission, air ride seats, four-point seatbelts, bolt-together

wheels, increased corrosion protection, enhanced electrical package, and independent front suspension on the A1.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** To date, fielded approximately 5,500 PLS trucks and 9,081 PLS trailers

PROJECTED ACTIVITIES

- **FY11:** PLSA1 type classification/materiel release
- **FY11:** PLSA1 first unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



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

FOREIGN MILITARY SALES

Turkey, Israel, Jordan

CONTRACTORS

Prime:

Oshkosh Corp. (Oshkosh, WI)

Engine:

Detroit Diesel (Emporia, KS; Redford, MI)

Caterpillar C-15 (Peoria, IL)

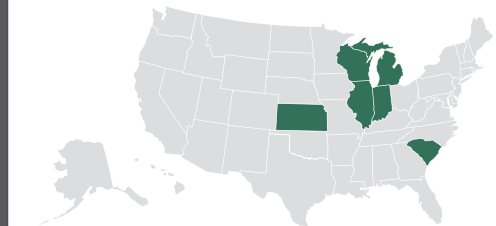
Transmission:

Allison Transmission (Indianapolis, IN)

Tires:

Michelin (Greenville, SC)

	PLS	PLSA1
ENGINE	DDC 8V92 - 500 horsepower	CAT C-15 - 600 hp @ 2100 RPM
TRANSMISSION	Allison CLT-755 - 5 Speed	Allison HD 4500 - 6 Speed
TRANSFER CASE	Oshkosh 55,000 - 2 Speed	New Oshkosh - 2 Speed
AXLES FRONT: TANDEM	Rockwell SVI 5MR	Oshkosh / Rockwell
SUSPENSION: FRONT TANDEM	Hendrickson RT-340 - Walking Beam	Oshkosh TAK-4TM Steel Spring
AXLES: REAR TRIDEM	Rockwell SVI 5MR	Rockwell SVI 5MR
SUSPENSION - AXLE #3	Hendrickson-Turner Air Ride	Hendrickson-Turner Air Ride
SUSPENSION - AXLES #4 & #5	Hendrickson RT-400 - Walking Beam	Hendrickson RT-400 - Walking Beam
WHEEL ENDS	Rockwell	Standard MTRV
CONTROL ARMS	N/A	PLS Block 1 - New
STEERING GEARS - FRONT	492 Master / M110 Slave	M110 Master / M110 Slave
STEERING GEARS - REAR	492	M110
FRAME RAILS	14 inch	14 inch
CAB	PLS	Common Cab
RADIATOR	PLS - Roof Mount	PLSA1 - Side Mount
MUFFLER	PLS	PLSA1 - New
AIR CLEANER	United Air	United Air
LHS	Multilift MK V	Multilift MK V
CRANE	Grove	Grove
TIRES	Michelin 16.00 R20 XZLT	Michelin 16.00 R20 XZLT
SPARE TIRE	1 - Side Mounted	1 - Roof Mounted
CTI	CM Automotive	Dana
AIR COMPRESSOR	1400 Bendix	922 Bendix
STARTER	Prestolite	Prestolite
ALTERNATOR	12/24V	24V - 260 Amp Niehoff



PATRIOT Advanced Capability–Three (PAC-3)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Protects ground forces and critical assets at all echelons from advanced aircraft, cruise missiles, and tactical ballistic missiles.

DESCRIPTION

The PATRIOT Advanced Capability–Three (PAC-3) program is an air-defense, guided missile system with long-range, medium- to high-altitude, all-weather capabilities designed to counter tactical ballistic missiles (TBMs), cruise missiles, and advanced aircraft. The combat element of the PATRIOT missile system is the fire unit, which consists of a phased array radar set (RS), an engagement control station (ECS), a battery command post, an electric power plant, an antenna mast group, a communications relay group, and launching stations (LS) with missiles.

The RS provides the tactical functions of airspace surveillance, target detection, identification, classification, tracking, missile guidance, and engagement support. The ECS provides command and control. Depending upon configuration, the LS provides the

platform for PAC-2 or PAC-3 missiles, which are sealed in canisters that serve as shipping containers and launch tubes.

The PAC-3 primary mission is to kill maneuvering and non-maneuvering TBMs, and counter advanced cruise missile and aircraft threats. The PAC-3 missile uses hit-to-kill technology for greater lethality against TBMs armed with weapons of mass destruction. The PAC-3 system upgrades have provided improvements that increase performance against evolving threats, meet user requirements, and enhance Joint interoperability. Patriot's fast-reaction capability, high firepower, ability to track numerous targets simultaneously, and ability to operate in a severe electronic countermeasure environment make it the Army's premier air defense system. The PAC-3 Missile Segment Enhancement, currently in development, is planned to be used with the PAC-3 system and will be the baseline interceptor for the Medium Extended Air Defense System, which succeeds the PATRIOT system.

SYSTEM INTERDEPENDENCIES

In this Publication

Air/Missile Defense Planning and Control System (AMDPACS); Integrated Air and Missile Defense (IAMD); Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS); Joint Tactical Ground Stations (JTAGS)

Other Major Interdependencies

ABMOC, AEGIS, AMDTF, AOC, AWACS, CRC, HAWKEYE, IAMD, P/M CAP, PEO Integration, RIVET-JOINT, SHORAD, TACC, TAOC, THAAD

PROGRAM STATUS

- **1QFY09:** Post deployment build–6.5 (PDB-6.5) development, test, and evaluation

PROJECTED ACTIVITIES

- **3QFY07–1QFY11:** Missile Segment Enhancement (MSE) flight testing
- **3QFY12:** PDB-7
- **4QFY14:** MSE fielding begins

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

PATRIOT Advanced Capability–Three (PAC-3)

FOREIGN MILITARY SALES

Germany, Japan, Netherlands, Taiwan, United Arab Emirates

CONTRACTORS

Missile Program Management Team:

Lockheed Martin (Dallas, TX)

Seeker Program Management Team:

Boeing (Anaheim, CA)

Mods: Raytheon (Tewksbury, MA; Long Beach, CA)

Seeker Manufacturing/RFDL:

Lockheed Martin Missiles and Fire Control (Chelmsford, MA)

ELES: Lockheed Martin (Lufkin, TX)

System Integration:

Raytheon–El Paso (El Paso, TX)

Raytheon (Huntsville, AL)

Raytheon–Norfolk (Norfolk, VA)

Raytheon–Burlington (Burlington, MA)

Missile Assembly:

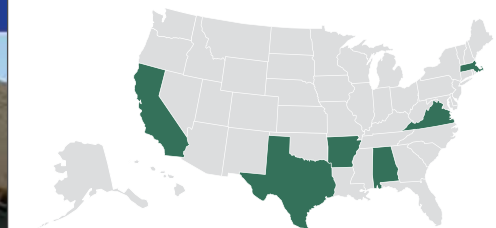
Lockheed Martin (Camden, AR)

Integration/GSE: Raytheon (Andover, MA)

Seeker: Boeing (Huntsville, AL)

Seeker Assembly: Boeing (El Paso, TX)

SRM/ACM: Aerojet (Camden, AR)



Precision Guidance Kit (PGK)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Improves the accuracy of existing conventional artillery ammunition.

DESCRIPTION

The Precision Guidance Kit (PGK) is an affordable Global Positioning System (GPS) guidance kit with fuzing functions that is compatible with the existing stockpile of conventional cannon artillery projectiles. PGK uses 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 and effectiveness offered by PGK provides commanders the operational capability to defeat more targets with the same basic load, while reducing the logistics burden associated with the current mission requirement.

The PGK program is following an incremental program approach. Increment 1, the XM1156 PGK, will be compatible with 155mm high explosive (HE) projectiles fired from the M109A6 Paladin and M777A2 Joint Lightweight 155mm Howitzer. Future increments could expand this capability to 105mm HE and cargo cartridges (to be fired from the M119A3 Howitzer), 155mm cargo projectiles, and improvements in accuracy and anti-jam capability.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** Increment 1 program is in engineering and manufacturing development

PROJECTED ACTIVITIES

Increment 1

- **FY12:** Initial operational capability

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Precision Guidance Kit (PGK)

FOREIGN MILITARY SALES

None

CONTRACTORS

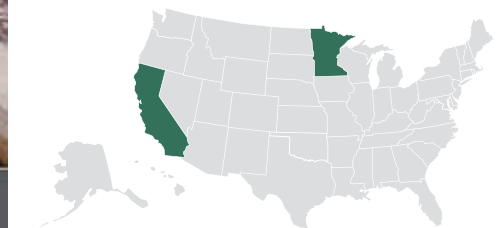
Increment 1

Prime:

Alliant Techsystems (Plymouth, MN)

Subcontractor:

L-3 Interstate Electronics Corp.
(Anaheim, CA)



Prophet

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a near-real-time picture of the battlespace through the use of signals intelligence sensors offering the capability to detect, identify, and locate selected emitters.

DESCRIPTION

Prophet is a 24-hour, all weather, near-real-time, ground-based tactical signals intelligence/electronic warfare capability organic to the Brigade Combat Team (BCT), Stryker BCT, Armored Cavalry Regiment, and Battlefield Surveillance Brigade. Prophet contains from two to four Electronic Support 1/Enhanced Systems, one to two controls, and a TROJAN–Lightweight Integrated Telecommunications Equipment (T-LITE) per control. It provides near-real-time force protection, situational awareness, and actionable intelligence by reporting the location, tracking,

and identification of radio frequency emitters. It is interoperable on the Global Signals Intelligence Enterprise, delivering collected data to common databases for access by the community. Prophet's tactical mobility allows supported units to easily reposition its collection capability on the battlefield to support evolving situations. Prophet can be removed and used as a dismounted capability for long-term operations.

Prophet Electronic Support 1 (ES 1) System is integrated on an armored M1165 High Mobility Multipurpose Wheeled Vehicle (HMMWV). The Prophet ES 1 System is being fielded to active and reserve units in support of Operation Enduring Freedom/Operation Iraqi Freedom. Some Prophet ES 1 Systems were updated to include Wideband Beyond-Line-of-Site (WBLOS) capabilities based on the present PM Warfighter Information Network–Tactical (WIN-T) architecture. This capability allows operation without the constraints of line-of-sight communication, increasing the system's capability to operate at extended distance and perform distributed operations.

The Prophet Enhanced System will provide increased capability over existing Prophet ES 1 Systems. The Prophet Enhanced System has been accelerated to provide upgraded capability integrated on an XM1229 Medium Mine Protected Vehicle to provide better crew protection, and fielded to units in preparation for deployment.

Prophet Control is integrated on an armored M1165 HMMWV. Prophet Control is the analytical node that tasks the Prophet ES 1 and Enhanced Systems for data collection and reporting.

The Prophet Enhanced–RCON system will be a “vehicle agnostic”/ modular system that will allow easy vehicle integration, and will increase the Prophet Enhanced System's capability to simultaneously perform multiple missions.

SYSTEM INTERDEPENDENCIES

In this Publication

Distributed Communications Ground System–Army (DCGS-A)

Other Major Interdependencies

Global Positioning System, Trojan lightweight integrated telecommunications equipment, tactical radio communications systems, light tactical vehicles and assured mobility systems, WIN-T for WBLOS

PROGRAM STATUS

- **2QFY10:** Prophet Enhanced quick reaction capability (QRC) first-unit equipped
- **2QFY10–4QFY10:** Fielded Prophet Enhanced QRC systems to Army Transformation BCTs and Battlefield Surveillance Brigade
- **4QFY10:** Prophet Enhanced–RCON contract mod awarded

PROJECTED ACTIVITIES

- **1Q–4QFY11:** Continue Prophet ES 1 and Prophet Enhanced Systems fieldings
- **1Q–4QFY11:** Continue to defield Prophet Block I systems as Prophet ES 1 and Prophet Enhanced Systems are fielded
- **2QFY11:** Prophet Enhanced first unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Prophet

FOREIGN MILITARY SALES

None

CONTRACTORS

Prophet Enhanced Sensor Production:

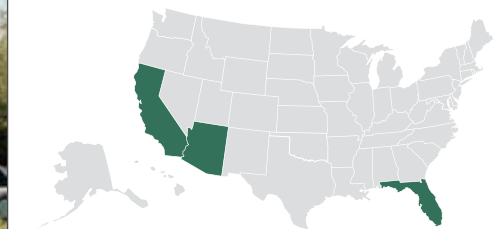
General Dynamics (Scottsdale, AZ)

Prophet ES 1 Sensor and Control

Production:

L-3 Communications (San Diego, CA;

Melbourne, FL)



Raven Small Unmanned Aircraft System (SUAS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides reconnaissance, surveillance, target acquisition (RSTA), and force protection for the battalion commander and below during day/night operations.

DESCRIPTION

The RQ-11B Raven Small Unmanned Aircraft System (SUAS) is a hand-launched, unmanned aircraft system capable of 90 minutes of flight time with an operational range of approximately ten kilometers. Normal operational altitude is 500 feet or lower. The system, aircraft, and ground control station are assembled by operators in approximately five minutes. The aircraft, which has a wingspan of 4.5 feet, weighs 4.2 pounds. Day and night operations are possible using interchangeable modular payloads. Both color electro-optical (EO) sensors and infrared (IR) sensors are fielded with each system. A hand controller displays live video and aircraft status. Mission planning is performed on the hand controller or ruggedized laptop running PFPS/Falcon View flight planning software. Aircraft flight modes include fully autonomous navigation, altitude hold,

loiter, and return home. In-flight re-tasking and auto-loiter at sensor payload point of interest are also available. Raven incorporates secure global positioning system navigation. The Raven system is comprised of three air vehicles, a ground control station (GCS), a remote video terminal (identical to GCS), EO/IR payloads, aircraft and GCS batteries, a field repair kit, and a spares package. 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 Raven aircraft.

The Raven is operated by two Soldiers and has a rucksack-portable design. No specific military occupational specialty is required. Operator training is ten days.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **Current:** In production and deployment
- **Current:** Operational in both Operation Iraqi Freedom and Operation Enduring Freedom

PROJECTED ACTIVITIES

- **FY11–12:** Continue full-rate production and product improvements

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

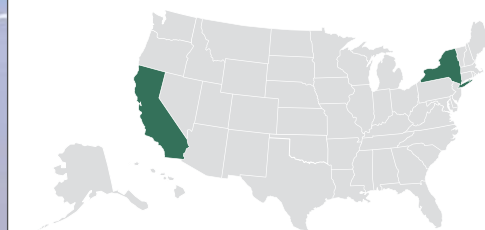
Raven Small Unmanned Aircraft System (SUAS)

FOREIGN MILITARY SALES

Estonia, Lebanon

CONTRACTORS

Aerovironment, Inc. (Simi Valley, CA)
Indigo System Corp. (Goleta, CA)
All American Racers, Inc. (Santa Ana, CA)
L-3 Communications (San Diego, CA)
Bren-Tronics (Commack, NY)



Rough Terrain Container Handler (RTCH)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance



MISSION

Provides container handling and materiel handling capability in cargo transfer companies, transportation companies, quartermaster units, and ammunitions platoons.

DESCRIPTION

The Rough Terrain Container Handler (RTCH) is a commercial, non-developmental item acquired for cargo-handling missions worldwide. The vehicle lifts, moves, and stacks both 20-foot and 40-foot American National Standards Institute/International Organization for Standardization containers and shelters weighing up to 53,000 pounds.

Improvements to RTCH include the capability to transport by rail, highway, or water in less than 2 1/2 hours, reducing preparation time for air transport (C5A and C17) from 16 hours to less than one hour; stacking nine-foot, six-inch containers three high; achieving a forward speed of 23 miles per hour; and adding a full-range extendable boom and flexible top handler. RTCH will operate worldwide,

on hard-stand, over-sand terrain, and cross-country, executing ammunition handling and transportation operations. The system is capable of conducting operations in cold, basic, and hot climates. Additionally, RTCH can ford up to 60 inches of sea water.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY09:** Contractor completed transfer to continental United States production

PROJECTED ACTIVITIES

- **Continue:** Production and fielding

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

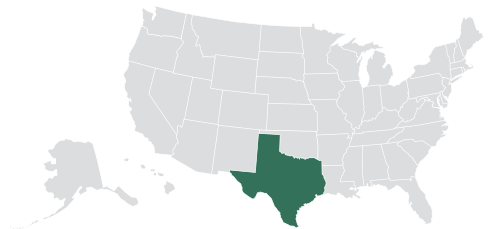
Production & Deployment

Operations & Support

**Rough Terrain Container Handler
(RTCH)**

FOREIGN MILITARY SALES
Australia, United Kingdom

CONTRACTORS
Kalmar Rough Terrain Center (KRTC) LLC
(Cibolo, TX)



Screening Obscuration Device (SOD)–Visual Restricted (Vr)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the warfighter with the ability to safely employ short-duration obscuration in the visual and near-infrared (IR) portions of the electromagnetic spectrum, screening dismounted maneuvers of the individual Soldier or team on restricted and complex terrain.

DESCRIPTION

The M106 Screening Obscuration Device–Visual Restricted (SOD-Vr) provides the warfighter the capability to rapidly employ small-area, short-duration, screening obscuration effects in the visual through near-IR spectrum (0.4–1.2 micron range) during full-spectrum operations.

The SOD-Vr is designed for use in restrictive terrain (i.e., urban structures, subterranean locations, and caves). The SOD-Vr degrades proper operation and performance of enemy battlefield weapon systems and enhances friendly capabilities.

The SOD-Vr provides a less hazardous alternative to current non-colored smoke and incendiary hand grenades because the fill is non-combustible and non-burning.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY09:** Full-rate production; full materiel release decision
- **FY10:** System redesign to include enhanced safety (visual- and tactical-recognition) features

PROJECTED ACTIVITIES

- **FY11:** Field systems to the warfighter



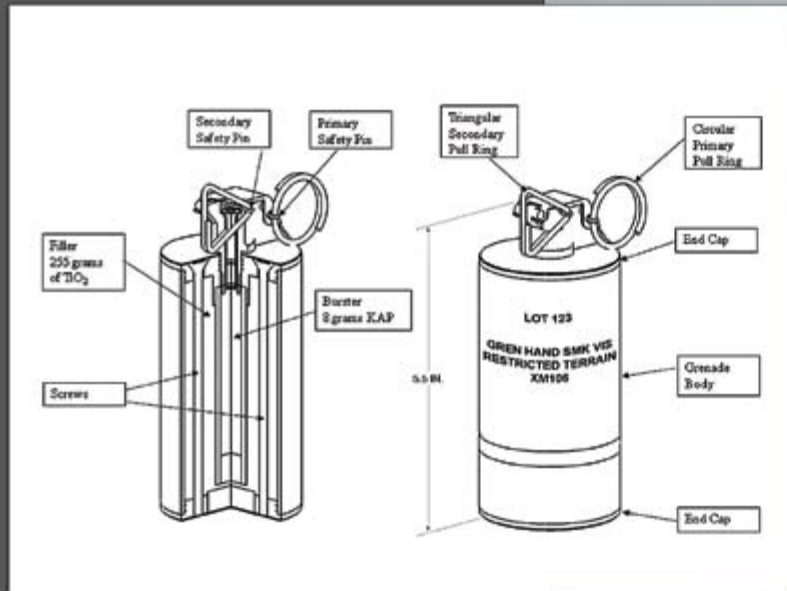
ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



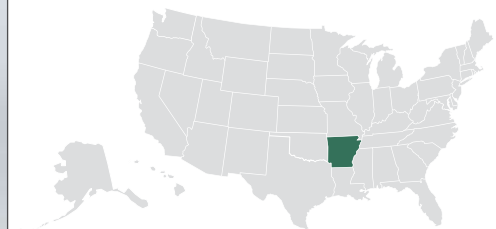
Screening Obscuration Device (SOD)–Visual Restricted (Vr)

FOREIGN MILITARY SALES

None

CONTRACTORS

Pine Bluff Arsenal (Pine Bluff, AR)



Secure Mobile Anti-Jam Reliable Tactical–Terminal (SMART-T)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides range extension to the Army's current and future tactical communications networks.

DESCRIPTION

The Secure Mobile Anti-Jam Reliable Tactical–Terminal (SMART-T) is a mobile military satellite communication terminal mounted on a standard High Mobility Multipurpose Wheeled Vehicle. The SMART-T extends the range of current and future tactical communications networks through DoD Milstar communication satellites. With the SMART-T's higher power transmitter, it now provides data rates up to 8.192 million bits per second (Mbps). It provides the Army with its only protected (anti-jam and anti-scintillation) wideband satellite communication capability with new AEHF Transmission Security (TRANSEC) algorithms. A production contract was awarded to upgrade SMART-T to support the Advanced Extremely High Frequency (AEHF) waveform. The AEHF satellite system will dramatically increase the Army's end-to-end communications throughput capability. The AEHF upgrade to the

SMART-T will include up-armorings in compliance with recent changes in Army policy for the deployment of personnel carriers.

SMART-T processes data and voice communications at both low and medium data rates. The terminal provides worldwide, anti-jam, low probability of intercept, secure voice, and data capabilities for the Joint warfighter. Its enhanced system interfaces include base-band interface changes, accommodating additional data rates. SMART-T will be fielded at the brigade and division levels.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies
The SMART-T communicates with Milstar military communication satellites, and is being upgraded to communicate with AEHF communication satellites.

PROGRAM STATUS

- **2QFY07–4QFY10:** Deployed up to 47 SMART-Ts in Southwest Asia; received positive feedback
- **3QFY08:** Completed fielding of 239 EHF SMART-Ts
- **2QFY09:** Completed Army buyout of AEHF SMART-T Upgrade Kits
- **3QFY10:** Awarded contract to procure 39 complete AEHF SMART-Ts

PROJECTED ACTIVITIES

- **1QFY11:** Obtain conditional materiel release for AEHF SMART-T modification work order
- **2QFY11:** Initiate AEHF SMART-T fieldings to operational Army units
- **3QFY12:** SMART-T will participate in Air Force AEHF multi-service operational test and evaluation

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

FOREIGN MILITARY SALES

None

CONTRACTORS

Production and Spares:

Raytheon (Largo, FL)

Engineering Support, Management:

Raytheon (Marlborough, MA)

Circuit Cards:

Teledyne (Lewisburg, TN)

Filters:

Transtector (Hayden, ID)

Amplifier Assemblies:

Spectrum Microwave (Marlborough, MA)

COMSEC:

L-3 Communications (Camden, NJ)

New Equipment Training/Fielding:

EPS Corp. (Martinez, GA)

Satellite Simulator:

Lincoln Labs (Lexington, MA)

Technical/Fielding Support:

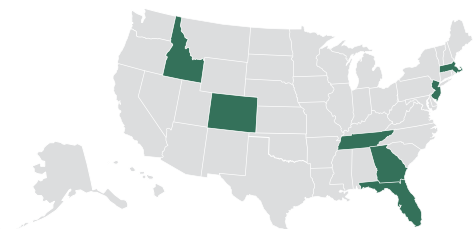
Linquest Corp. (Colorado Springs, CO)

Admin/Tech:

JANUS Research (Eatontown, NJ)

Technical:

Booz Allen Hamilton (Eatontown, NJ)



Sentinel

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides persistent surveillance and fire control quality data through external command and control platforms, enabling protection against cruise missiles, aircraft, unmanned aerial vehicles, and rocket, artillery, and mortar threats.

DESCRIPTION

Sentinel is used with the Army's Forward Area Air Defense Command and Control (FAAD C2) system and provides key target data to Stinger-based weapon systems and battlefield commanders via FAAD C2 or directly, using an Enhanced Position Location Reporting System or the Single Channel Ground and Airborne Radio System.

Sentinel consists of the M1097A1 High Mobility Multipurpose Wheeled Vehicle, the antenna transceiver

group mounted on a high-mobility trailer, the identification friend-or-foe system (IFF), and the FAAD C2 interface. The sensor is an advanced three-dimensional battlefield X-band air defense phased-array radar with a 40-kilometer range.

Sentinel can operate day and night, in adverse weather conditions, and in battlefield environments of dust, smoke, aerosols, and enemy countermeasures. It provides 360-degree azimuth coverage for acquisition and tracking of targets (cruise missiles, unmanned aerial vehicles, rotary and fixed-wing aircraft) moving at supersonic to hovering speeds and at positions from the map of the earth to the maximum engagement altitude of short-range air defense weapons. Sentinel detects targets before they can engage, thus improving air defense weapon reaction time and allowing engagement at optimum ranges. Sentinel's integrated IFF system reduces the potential for engagement of friendly aircraft.

Sentinel modernization efforts include enhanced target range and classification upgrades to engage non-line-of-sight targets; increased detection and acquisition range of targets; enhanced situational awareness; and classification of cruise missiles. The system provides integrated air tracks with classification and recognition of platforms that give an integrated air and cruise missile defense solution for the Air and Missile Defense System of Systems Increment 1 architecture and subsequent increments. Sentinel provides critical air surveillance of the National Capital Region and other areas as part of ongoing homeland defense efforts, and is a component of the counter rocket, artillery, and mortar batteries in the area of responsibility.

SYSTEM INTERDEPENDENCIES

FAAD C2, Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

PROGRAM STATUS

- **4QFY10:** Delivery and installation of 14 Improved Sentinel Kits on radars

PROJECTED ACTIVITIES

- **2QFY11:** Contract award for 62 Improved Sentinels
- **2QFY11:** Contract award for 156 AN/TPX-57 IFFs
- **FY11–13:** Installation/upgrade of radars with 33 Improved Sentinel Kits

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

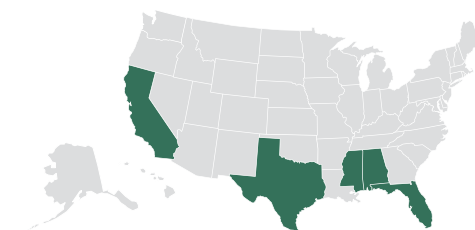
Sentinel

FOREIGN MILITARY SALES

Egypt, Lithuania, Turkey

CONTRACTORS

Thales Raytheon Systems (Fullerton, CA;
El Paso, TX; Forest, MS; Largo, FL)
CAS, Inc. (Huntsville, AL)



Shadow Tactical Unmanned Aircraft System (TUAS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

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.

DESCRIPTION

The RQ-7B Shadow Tactical Unmanned Aircraft System (TUAS) has a wingspan of 14 feet and a payload capacity of approximately 60 pounds. Gross takeoff weight exceeds 380 pounds and endurance is more than five hours on-station at a distance of 50 kilometers. 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. The One System Ground

Control Station (OSGCS) is the only Joint-certified Ground Control Station (GCS) in the Department of Defense. The RQ-7B Shadow can be transported by six Air Force C-130 aircraft. It is currently operational in both the Army and Marine Corps.

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

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

Shadow systems are manned by dedicated Unmanned Aircraft System platoons of 22 soldiers and typically two contractors. Shadow platoons are organic to the BCT. The Soldier platoon consists of a platoon leader, platoon sergeant, unmanned aerial

vehicle (UAV) warrant officer, 12 Air Vehicle Operators/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 GCS, the air vehicle transport HMMWV, 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.

SYSTEM INTERDEPENDENCIES

In this Publication

HMMWV Family of Vehicles, Single Channel Ground and Airborne Radio System (SINCGARS)

Other Major Interdependencies

MEP803A 10kW

PROGRAM STATUS

- **Current:** In production and deployment; flown more than 535,000 hours in support of combat operations in Operation Iraqi Freedom and Operation Enduring Freedom since achieving initial operating capability

PROJECTED ACTIVITIES

- **FY11–12:** Field remaining production systems; procure and field laser designator, Tactical Common Data Link, and Universal Ground Control Station retrofits; develop and field reliability and product improvements

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Shadow Tactical Unmanned Aircraft System (TUAS)

FOREIGN MILITARY SALES

Australia

CONTRACTORS

Shadow System:

AAI Corp. (Textron Systems)
(Hunt Valley, MD)

TCDL:

L-3 Communications (Salt Lake City, UT)

Shelter Integration:

CMI (Huntsville, AL)

GDT:

Tecom (Chatsworth, CA)

Shelters:

General Dynamics (Marion, VA)

ACE II Flight:

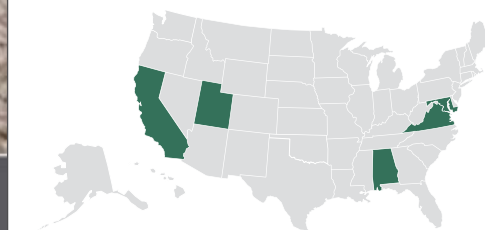
Athena (Warrenton, VA)

Mode IV IFF:

Raytheon (Baltimore, MD)

Amplifiers:

CTT (Santa Clara, CA)



Single Channel Ground and Airborne Radio System (SINGARS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides Joint commanders with a highly reliable, low-cost, secure, and easily maintained Combat NET Radio (CNR) that has both voice and data handling capability in support of tactical command and control operations.

DESCRIPTION

The Single Channel Ground and Airborne Radio System (SINGARS) Advanced SINGARS System Improvement Program (ASIP) radio is the DoD/Army multi-service fielded solution for voice communication for platoon level and above, operating over the 30.000 to 87.975MHz frequency range. This radio provides the capability of establishing two-way communications (including jam-resistance) using the SINGARS waveform and provides multimode voice and data communications supporting ground, air-to-ground, and ground-to-air line-of-sight communications links. The ASIP radio is the newer version of the SINGARS radio. It is smaller than the SIP and

weighs significantly less, while still maintaining all the functionalities of the SIP for backward compatibility.

Enhancements include the Embedded Global Positioning System (GPS) Receiver (EGR) and the radio-based combat identification/radio-based situational awareness (RBCI/RBSA) capability, which provides the warfighter with enhanced situational awareness and identification of friendly forces in targeted areas. RBCI serves as a gap filler for combat identification, providing an interrogation/responder capability to satisfy the air-to-ground positive identification of platforms prior to release of weapons to prevent fratricide. RBSA adds a radio beaconing capability for every ASIP-equipped platform to enhance the Blue Force situational awareness picture. The Internet controller enhancements add improved addressing capabilities in support of tactical Internet enhancements being provided by Joint Battle Command-Platform for Joint interoperability. Crypto modernization is a programmable communications security capability for SINGARS that

will allow the radios to continue to provide secure communications to the secret and top-secret level of security.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **3QFY08–FY10:** Continue to field in accordance with Headquarters Department of the Army guidance to support the Army Campaign Plan; National Guard, Army Reserve, and Active Army, Operation Enduring Freedom requirements and urgent Operational Needs Statement
- **3QFY09:** Competitive contract award for procurement of SINGARS radios to meet approved acquisition objective requirement in FY09

PROJECTED ACTIVITIES

- **FY11–4QFY13:** Fielding of SINGARS to Army Overseas Contingency Operation through FY13

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Single Channel Ground and Airborne Radio System (SINCARS)

FOREIGN MILITARY SALES

Australia, Bahrain, Croatia, Egypt, Estonia, Finland, Georgia, Greece, Hungary, Ireland, Italy, Korea, Kuwait, Morocco, New Zealand, Portugal, Saudi Arabia, SHAPE Tech Center, Slovakia, Taiwan, Thailand, Ukraine, Uzbekistan, Zimbabwe

CONTRACTORS

Radio design/production:

ITT (Fort Wayne, IN)

Hardware Installation Kits:

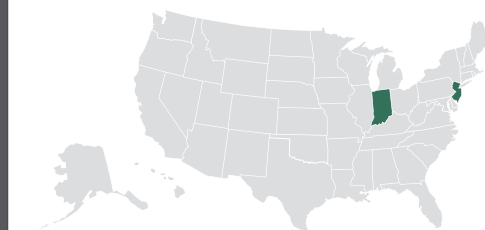
UNICOR (Washington, DC)

Engineering Support and Testing:

ITT (Clifton, NJ)

Total Package Fielding:

CACI (Eatontown, NJ)



Small Arms—Crew Served Weapons

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables warfighters and small units to engage targets with lethal fire to defeat or deter adversaries.

DESCRIPTION

The M240B 7.62mm Medium Machine Gun has been reconfigured for ground applications with buttstock, bipod, iron sights, and forward-rail assemblies. The M240B has a maximum effective range of 1,800 meters, a cyclic rate of fire of 650 rounds per minute, and a muzzle velocity of 2,800 feet per second.

The M240L 7.62mm Medium Machine Gun (Light) incorporates titanium construction and alternative manufacturing methods to achieve significant weight savings. These improvements reduce the Soldier's combat load while allowing easier handling and movement of the weapon.

The M240L short barrel variant is 21.8 pounds, 5.4 pounds lighter than the M240B.

The M249 Squad Automatic Weapon (SAW) replaces the M16A1 Automatic Rifle at the squad level, as well as some M60 multipurpose machine guns in non-infantry units. The M249 delivers greater range and rates of fire than the M16 or M4.

A collapsible buttstock improves weapons control when fired in confined spaces. A new short barrel allows for improved egress and maneuver in close quarter combat. An improved bipod provides Soldiers with increased reliability and weapon accuracy, including on uneven terrain.

The M2 .50 Caliber Machine Gun is highly effective against light armored vehicles, low- and slow-flying aircraft, and small boats. The M2 provides suppressive fire for offensive and defensive purposes. It is capable of single-shot (ground M2 Machine Gun) and automatic fire.

The M2E2 Quick Change Barrel (QCB) Kit improves performance and is easier and safer to use. Other upgrades improve on the battle-proven M2 and can be retrofitted to existing M2HB weapons.

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 suppressive weapon for combat support and combat service support units.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

M240B:

- In production
- Fielding ongoing
- **4QFY09:** Competitive indefinite delivery/indefinite quantity (IDIQ) contract awarded

M240L:

- **4QFY08:** Type classification and low-rate production

- **3QFY09:** Awarded letter contract for initial production deliveries
 - **1QFY10:** Deliver first low-rate initial production quantity of 50 weapons
- M249:**
- In production
 - **2QFY09:** Competitive IDIQ contract awarded
 - **4QFY09:** Awarded second delivery order on FY09 IDIQ contract

PROJECTED ACTIVITIES

M240B:

- **Continue:** Production and fielding

M240L:

- **FY11:** Full materiel release

M249:

- **Continue:** Production and fielding
- **Continue:** Participation in small arms readiness evaluation team to inspect, repair, renovate, or replace M249 weapons for units deploying overseas

MK19

- **Continue:** Production delivery under new contract
- **Continue:** Fielding in support of current operations

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Small Arms—Crew Served Weapons

FOREIGN MILITARY SALES

M240B Machine Gun:

Afghanistan, Jordan, Yemen

M249 SAW:

Afghanistan, Colombia, El Salvador

MK19 Grenade Machine Gun:

None

M2:

Afghanistan, Jordan

CONTRACTORS

M249 SAW:

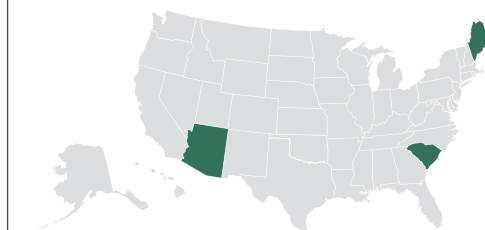
Fabrique National Manufacturing, LLC
(Columbia, SC)

M240B Machine Gun:

Fabrique National Manufacturing, LLC
(Columbia, SC)

MK19 Grenade Machine Gun:

General Dynamics Armament and
Technical Products (Saco, ME)
Alliant Techsystems (Mesa, AZ)



Small Arms—Individual Weapons

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables warfighters and small units to engage targets with lethal fire to defeat or deter adversaries.

DESCRIPTION

The M4 Carbine replaces the M16 series Rifles in all Brigade Combat Teams, Division Headquarters, and other selected units. It is 1.4 pounds lighter and more portable than the M16 series of rifles. The M4 series of carbines can also be mounted with the M203A2 Grenade Launcher, M320 Grenade Launcher, or M26 Modular Accessory Shotgun System (MASS).

The M14 Enhanced Battle Rifle (EBR) has a new adjustable buttstock, cheek rest and M4-style pistol grip, making the rifle effective in both close quarters combat and in the Squad Designated Marksman role. The EBR can be returned to its original configuration with no permanent modifications. Five

thousand M14 EBRs were assembled at TACOM Lifecycle Management Command at Rock Island Arsenal in response to Operational Need Statements requesting a longer range capability. The upgraded weapons are currently in service with select Army units.

The M320 Grenade Launcher is the replacement to all M203 series grenade launchers on M16 Rifles and M4 Carbines. A modular system, it attaches under the barrel of the rifle or carbine and can convert to a stand-alone weapon. The M320 improves on current grenade launchers with an integral day/night sighting system and improved safety features. It also has a side-loading unrestricted breech that allows the system to fire longer 40mm low-velocity projectiles (NATO standard and non-standard).

The lightweight M26 12-Gauge MASS attaches to the M4 Carbine and zeroes to the host weapon. It is also designed to operate as a stand-alone system, and comes with a recoil-absorbing, collapsible buttstock. The Picatinny rail mounted on top allows accessory equipment to

be mounted on the shotgun. The bolt handle is mountable on either side for ambidextrous handling.

The MASS enables Soldiers to transition between lethal and less-than-lethal fires and adds the capability of a separate shotgun without carrying a second weapon. Additional features include a box magazine, flip-up sights, and an extendable stand-off device for door breaching.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

M4 Carbine:

- **Current:** Delivery and fielding

M14 EBR:

- **3QFY09:** Army Requirements and Resourcing Board approved 5,000 systems
- **1QFY10:** 1,200 additional systems authorized
- **3QFY10:** First 5,000 complete (95 percent fielded)

M320 Grenade Launcher Module:

- **1QFY09:** Type classification-standard decisions

- **1QFY09:** Materiel release and full-rate production decision
 - **3QFY09:** First unit equipped
- M26 Modular Accessory Shotgun System:**
- **4QFY09:** Limited user test and evaluation with MP units
 - **2QFY10:** Low-rate initial production approved
 - **4QFY10:** First article testing complete

PROJECTED ACTIVITIES

M4 Carbine:

- **Continue:** M4 production, deliveries, and fielding

M14 EBR:

- **4QFY11:** Complete remaining 1,200 systems

Continue:

M320 Grenade Launcher Module:

- **Continue:** Production and fielding
- **Continue:** Reduce size and weight of day/night sight

M26 Modular Accessory Shotgun System:

- **4QFY10–2QFY11:** Ramp up to full rate production
- **2QFY11:** Materiel release
- **3QFY11:** First unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Small Arms—Individual Weapons

FOREIGN MILITARY SALES

M4 Carbine:

Bosnia-Herzegovina, Colombia,
El Salvador, Jordan, Philippines

M4A1:

Bahrain, Yemen

CONTRACTORS

M4 Carbine:

Colt's Manufacturing Co. (Hartford, CT)

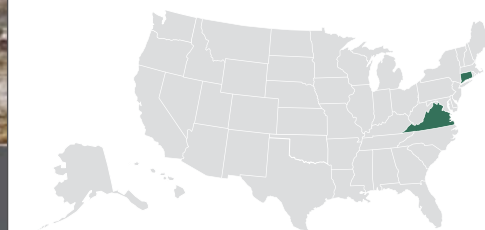
M320 Grenade Launcher Module:

Heckler and Koch Defense Inc.
(Ashburn, VA)

M26 Modular Accessory Shotgun

System:

Vertu Corp. (Warrenton, VA)



Small Caliber Ammunition

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides warfighters with the highest quality, most capable small caliber ammunition for training and combat.

DESCRIPTION

Small Caliber Ammunition consists of 5.56mm, 7.62mm, 9mm, 10- and 12-gauge, .22 Cal., .30 Cal., .50 Cal., and Grenade Rifle Entry Munition (GREM). The 5.56mm cartridge is used by the M16 Rifle, M249 Squad Automatic Weapon (SAW), and the M4 Carbine. The 7.62mm cartridge is used by the M240 Machine Gun, and M60 Machine Gun, as well as the M24, M110 and M14 EBR Sniper Rifles. The 9mm cartridge is fired by the M9 Pistol. The M2 Machine Gun and the M107 Sniper Rifle use .50 Cal. cartridges. The remaining Small Caliber Ammunition is used in a variety of pistols, rifles and shotguns.

Three categories of Small Caliber Ammunition are currently in use. War Reserve Ammo is modern ammunition that supports individual and crew served weapons during combat operations. Training Standard Ammunition is dual-purpose, and is used to support training or operational requirements. Training Unique Ammunition is designed specifically for use in training and is not for combat use, i.e., blank, dummy, inert, and short range training ammunition.

SYSTEM INTERDEPENDENCIES

Small Arms–Crew Served Weapons,
Small Arms–Individual Weapons

PROGRAM STATUS

- **Current:** M855A1 Enhanced Performance Round (M855 replacement program) in full production

PROJECTED ACTIVITIES

- **FY11:** Produce and deliver one billion rounds (5.56mm, 7.62mm, and 0.50 Cal.)
- **FY12:** Complete Lake City Army Ammunition Plant modernization program

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

5.56mm



7.62mm



.50 Cal.



**12-Gauge
Buckshot**



GREM



.30 Cal. Blank 9mm M882 DDI

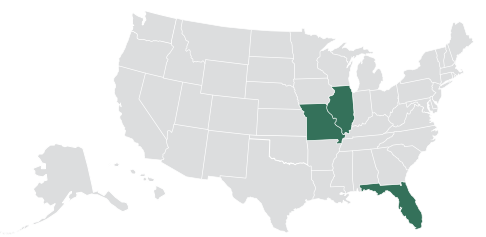
Small Caliber Ammunition

FOREIGN MILITARY SALES

5.56mm, 7.62mm, .50 Caliber:
Afghanistan, Colombia, Czech Republic, El Salvador, France, Hungary, India, Iraq, Israel, Japan, Jordan, Kenya, Lebanon, Philippines, Singapore, Thailand, Tunisia, Yemen

CONTRACTORS

Alliant Techsystems (Independence, MO)
General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)
Olin Corp. (East Alton, IL)
General Dynamics (Saint Marks, FL)
SNC Technologies (LeGardeur, Québec, Canada)



Sniper Night Sight (SNS), AN/PVS-10

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables snipers to acquire and engage targets during day and night operations.

DESCRIPTION

The AN/PVS-10 Sniper Night Sight (SNS) is a lightweight, weapon-mounted, self-contained image-intensified passive device designed primarily for use by snipers for day and night operations. It has a range of 600 meters at night, and 800 meters during daylight. A day/night lever enables the user to alternate between day and night modes of operation. The SNS employs a variable-gain image intensifier that can be adjusted by the user depending on the ambient light levels. It includes a black-line reticle for day use and can be illuminated for night use when required.

An eyepiece diopter adjustment permits use of the SNS without corrective glasses. A rail mounting interface is integrated into the base of the sight to be quickly mounted to or dismounted from the weapon.

Weight: 4.9 pounds

Magnification: 8.5x

Range: Target recognition (night): 600 meters; target recognition (day): 800 meters

Operational time: 24 hours (with one battery set change)

Power: Two AA batteries

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY10:** Fielded to snipers supporting Operation Enduring Freedom and Operation Iraqi Freedom

PROJECTED ACTIVITIES

- **FY11:** Continue to field in accordance with Headquarters Department of the Army guidance

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

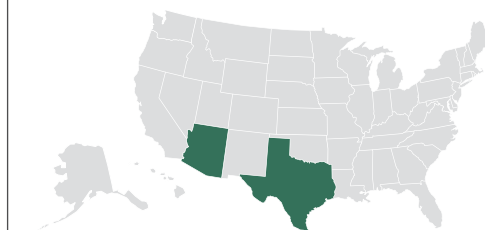
Sniper Night Sight (SNS), AN/PVS-10

FOREIGN MILITARY SALES

Austria, Colombia, Kenya, Poland,
Thailand

CONTRACTORS

L-3 Communications Electro-Optical
Systems (Tempe, AZ; Garland, TX)



Spider

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the commander with a new capability to shape the battlefield, protect the force, and respond to changing battlefield environments in a graduated manner while minimizing risk to friendly troops and non-combatants.

DESCRIPTION

Anti-Personnel Landmine Alternatives (APL/A) Track I (Spider) is a hand-emplaced, remotely-controlled, Man-in-the-Loop (MITL), anti-personnel munition system. Spider provides munition field effectiveness, but does so without residual life-threatening risks after hostilities end. The fielding of this system with its sensors, communications, and munitions changes the way Soldiers operate in an otherwise unpredictable battlefield. Each munition is controlled by a remotely stationed Soldier who monitors its sensors, allowing for more precise (non-lethal to lethal) responses—a significant advancement and advantage. The Spider Networked Munitions System enables MITL to detect, track, classify, count, and destroy the enemy.

The Spider system contains three main components: the remote control unit, residing within a computer interface; the repeater, extending the remote control range; and a munition control unit for sending and receiving commands as well as activating the munitions. Spider can be used as a force-protection-reinforcing obstacle to delay, disrupt, and channel enemy forces as well as restrict their use of critical routes of terrain, thereby reducing civil casualties and the exposure of personnel to hostile fire. It can also be integrated into a base defense system, providing protection to soldiers in forward operating bases and combat outposts.

The system's design allows for safe, flexible, and rapid deployment, reinforcement, and recovery as well as safe passage of friendly forces. Spider eliminates the possibility of an unintended detonation through early warning and selective engagement of enemy forces, and has a self-destruct capability. Spider is designed for storage, transport, rough handling, and use in worldwide military environments.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies

Interface with Tactical Internet through Force XXI Battle Command Brigade-and-Below and obstacle positioning through Global Positioning System

PROGRAM STATUS

- **2QFY09:** Fielding of urgent materiel release hardware to Operation Enduring Freedom
- **1QFY10:** Award contract modification to procure up to an additional 70 systems

PROJECTED ACTIVITIES

- **1QFY11:** Materiel release/type classification standard
- **1QFY11:** Full-rate production decision
- **3QFY11:** Full-rate production contract award

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Spider

Remote Control Unit - RCU
Enables Man-in-the-Loop (MITL) command and control of all munitions in the field



Transceiver
RCU with transceiver (RCUT) makes up the Remote Control Station (RCS)

Standard antenna mast or SCE VHAM

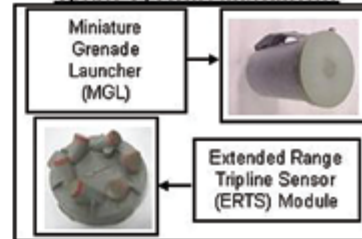
Munition Control Unit – MCU
Hand emplaced, remotely controlled munitions. Detects intrusions, controls lethal and non-lethal munitions



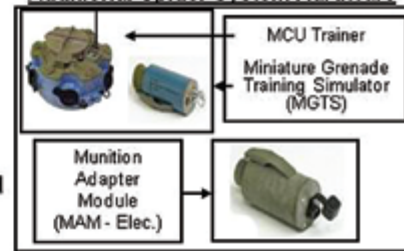
Repeater
Provides for extended Range and/or to Overcome difficult terrain



Spider System Attachments



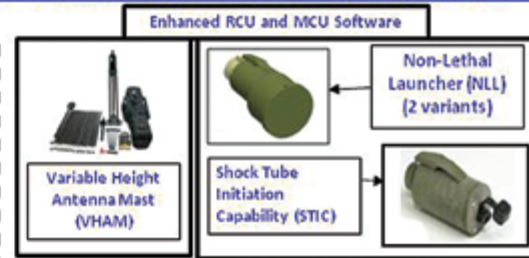
Additional Spider System Hardware



SCE Added Hardware/ Modified Software / Enhanced Capability

System Capabilities

- Self-Destruct & Self Deactivate
- Command Reset/Recycle Self-Destruct
- Transfer of Control
- Interface to ABCS via removable media
- Command Destruction
- ON-OFF-ON (safe passage/maint.)
- Multiple Effects (Lethal / NL / Demo)
- Intrusion Detection
- Anto-tamper/Self Protection
- Reuse



FOREIGN MILITARY SALES

None

CONTRACTORS

Prime:

Textron Defense Systems
(Wilmington, MA)

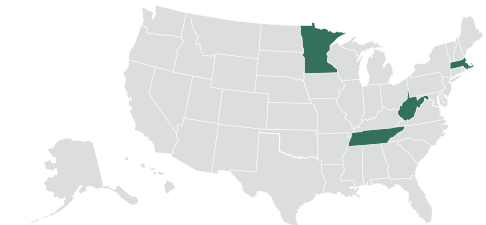
Alliant Techsystems (Plymouth, MN)

Subcontractors:

Alliant Techsystems (Rocket Center, WV)

BAE Systems/Holston (Kingsport, TN)

American Ordnance (Milan, TN)



Stryker Family of Vehicles

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Enables the Army to immediately respond to urgent operational requirements anywhere in the world using rapidly deployable, agile, and strategically responsive support vehicles.

DESCRIPTION

As the primary combat and combat support platform of the Stryker Brigade Combat Team (SBCT), the Stryker Family of Vehicles fulfills an immediate requirement for a strategically deployable (C-17/C-5) brigade capable of rapid movement anywhere on the globe in a combat-ready configuration. The Stryker Family of Vehicles is built on a common chassis, each with a different Mission Equipment Package. There are ten variants, including the Infantry Carrier Vehicle (ICV), the Mobile Gun System (MGS), the Reconnaissance Vehicle (RV), Mortar Carrier,

Commanders Vehicle, Fire Support Vehicle (FSV), Engineer Squad Vehicle, Medical Evacuation Vehicle (MEV), Anti-tank Guided Missile (ATGM) Vehicle, and the Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV).

The ICV (excluding the MEV, ATGM, FSV, and RV) is armed with a Remote Weapon Station supporting an M2 .50 caliber machine gun or MK19 automatic grenade launcher, the M6 grenade launcher, and a thermal weapons sight. Stryker supports communication suites that integrate the Single-Channel Ground-and-Air Radio System (SINGARS) radio family; Enhanced Position Location Reporting System (EPLRS); Force XXI Battle Command Brigade-and-Below (FBCB2) or Blue Force Tracker (BFT); Global Positioning System (GPS); high-frequency (HF) and multi-band very-high and ultra-high frequency (VHF/UHF) radio systems. Stryker provides 360 degree protection against armor-piercing threats. Stryker is powered by a 350-hp diesel engine, runs on eight wheels that possess a

run-flat capability, and has a central tire-inflation system. It also incorporates a vehicle-height management system.

The Stryker program leverages non-developmental items with common subsystems and components to allow rapid acquisition and fielding. Stryker integrates government furnished materiel subsystems as required and stresses performance and commonality to reduce the logistics footprint and minimize costs.

SYSTEM INTERDEPENDENCIES

In this Publication
FBCB2, SINGARS

Other Major Interdependencies

DAGR, DVE, EPLRS, FH MUX, FS3, KNIGHT, LRAS3, MCS, MFCS, RWS, SHADOWFIRE, SPITFIRE, STORM, VIS VIC, Sensor Processing Group, Sensor Suite

PROGRAM STATUS

- **4QFY09:** Configuration Steering Board addresses trigger event requirements to Stryker program

- **1QFY10:** Army announces plan to convert two Heavy Brigade Combat Teams (HBCTs) to SBCTs, increasing total SBCTs to nine
- **2QFY10:** Acquisition Decision Memorandum (ADM) clarifies the term correction regarding MGS deficiencies and authorizing continued use of development or production funds in the existing MGS fleet
- **4QFY10:** ADM authorizes concurrent production and testing of Army-directed requirement for 450 Strykers with improved survivability enhancements

PROJECTED ACTIVITIES

- **1QFY11:** First HBCT begins conversion to SBCT
- **1QFY11:** Stryker Modernization requests a materiel development decision to enter into the technology development acquisition phase
- **4QFY11:** Planned full-rate production decision for NBCRV and MGS variants
- **4QFY11:** Initial deployment of Strykers incorporating improved survivability enhancements to Afghanistan
- **1QFY12:** Second HBCT begins conversion to SBCT

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Stryker Family of Vehicles

FOREIGN MILITARY SALES

None

CONTRACTORS

General Dynamics Land Systems
(Sterling Heights, MI)

Manufacturing/Assembly:

General Dynamics Land Systems-Canada
(London, Ontario, Canada)

Joint Systems Manufacturing Center
(JSMC) (Lima, OH)

General Dynamics Assembly Operations
(Anniston, AL)

Engineering:

General Dynamics (Sterling Heights, MI)

Kits:

Verhoff Machine (Continental, OH)

Manifold/Alternator:

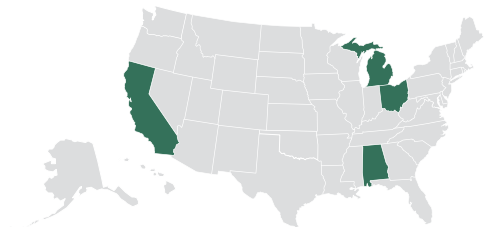
North American Controls (Shelby Twp, MI)

Sensors/CCA:

Raytheon (El Segundo, CA)

Fire System Assembly:

Kidde Dual Spectrum (Goleta, CA)



Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Defeats aerial threats to the current and future maneuver force and other critical assets while supporting a variety of missions at the tactical, operational, and strategic levels of warfare.

DESCRIPTION

The Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) is a key component of the Integrated Air and Missile Defense (IAMD) Composite Battalion and will replace the Avenger in the Army's Air and Missile Defense forces. SLAMRAAM is a lightweight, day-or-night, adverse weather, non-line-of-sight system for countering cruise missiles and unmanned air vehicle threats with engagement capabilities of up to 18 kilometers.

The system is comprised of an Integrated Fire Control Station (IFCS) for command and control, integrated sensors, and missile launcher platforms. While SLAMRAAM uses Sentinel as its organic radar to provide surveillance and fire control data, the system will also receive data from

other Joint and Army external sensors when available. The SLAMRAAM launcher, with remote capability, is a mobile platform with multi-service launch rails, launcher electronics, on-board communication components, and four to six AIM-120-C Advanced Medium Range Air-to-Air Missiles (AMRAAMs). The SLAMRAAM system is a critical component of a Joint Cruise Missile Defense capability.

SYSTEM INTERDEPENDENCIES

SLAMRAAM will provide engagement operations interoperability by participating on the Joint Data Network (JDN) (Link 16) Internal and External communication. The IFCS will manage engagement operations, and the Advanced Sentinel radar will be the initial sensor. In addition, SLAMRAAM will be supported by the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) System.

PROGRAM STATUS

- **4QFY09:** Army directed SLAMRAAM to be configured on a more crew survivable platform
- **2QFY10:** Army decision to configure SLAMRAAM on the Family of Medium Tactical Vehicles

PROJECTED ACTIVITIES

- **2QFY11:** Limited user testing
- **3QFY11:** Milestone C decision for low-rate initial production (LRIP)
- **3QFY11:** LRIP

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

FOREIGN MILITARY SALES

None

CONTRACTORS

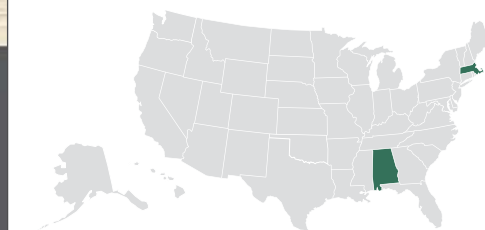
Tech/Program Support:

SETA (Huntsville, AL)

System Development/Integration

(FU/HIL/SIL):

Raytheon (Tewksbury, MA)



Tactical Battle Command (TBC)/Maneuver Control System (MCS)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the tactical battle command core environment and common services baseline for executive decision-making capabilities, maneuver functional and battle staff tools, and enterprise services.

DESCRIPTION

Tactical Battle Command (TBC)/Maneuver Control System (MCS) is a suite of products and services that includes the Command Post of the Future (CPOF), Battle Command Common Services (BCCS), Maneuver Control System (MCS), Joint Convergence effort with the United States Marine Corps (USMC), tactical SharePoint web portal, coalition interoperability, and integration of other Army Battle Command Systems (ABCS).

CPOF serves as the Army's mission critical command and control (C2) system that provides collaborative and situational awareness tools to support decision making, planning, rehearsal, and execution management. CPOF will serve as the foundation for the Battle Command Collapse effort, which will unify Battle Command Capabilities in one environment, allowing the commander and users to access fires, air, log, and maneuver capabilities (information and functionality) through one workstation and one interface.

BCCS provides the enabling infrastructure for ABCS and Tactical Battle Command and for migration to Net-Centric Enterprise Services environment. The Battle Command Server provides interoperability services, including the publish and subscribe service and data dissemination service. The server also supports Joint convergence with USMC by providing a data exchange gateway that allows the direct exchange of Common Operational Picture (COP) data between the Joint services. SharePoint portal services

are also provided for asynchronous collaboration managing business and operational processes and leveraging business intelligence tools for data analysis.

MCS version 6.4 is a mission-critical C2 system that allows commanders and staffs to visualize the battle space and synchronize the elements of combat power. MCS includes battle staff tools and maneuver functional capabilities, including Chemical, Biological, Radiological, and Nuclear tools, and engineering tools for combat and construction engineers.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Battle Command Sustainment Support System (BCS3), Distributed Common Ground System–Army (DCGS-A), Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment I, Global Command and Control System–Army (GCCS-A), Force XXI Battle Command Brigade and Below (FBCB2), Joint Battle Command–Platform (JBC-P),

Joint Effects Model (JEM), Joint Tactical Radio System Ground Mobile Radios (JTRS GMR), Joint Warning and Reporting Network (JWARN)

Other Major Interdependencies

AMDWS, AMPS, ASAS, GCCS, IMETS, JTCW/C2PC, NCES, TAIS, TBMCS, WIN-T

PROGRAM STATUS

- **3QFY08:** Joint Requirements Oversight Council approves MCS version 6.4 Capabilities Production Document
- **1QFY09:** Fielding decision (CPOF QR1)
- **3QFY10:** Operational demonstration of CPOF software with Personalized Assistant that Learns technology

PROJECTED ACTIVITIES

- **1QFY11:** Quarterly release of CPOF software version BC10.0.1

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

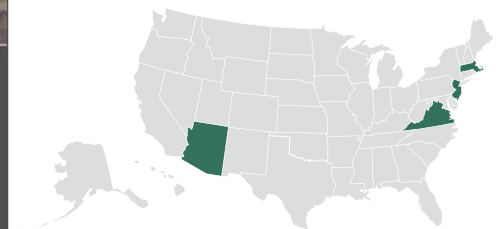
Tactical Battle Command (TBC)/ Maneuver Control System (MCS)

FOREIGN MILITARY SALES

None

CONTRACTORS

General Dynamics (Taunton, MA;
Scottsdale, AZ)
CECOM Software Engineering Center (Fort
Monmouth, NJ)
Lockheed Martin (Tinton Falls, NJ)
CACI (Chantilly, VA)
Sensor Technologies (Red Bank, NJ)



Tactical Electric Power (TEP)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides standardized tactical electric power to the Department of Defense in support of national security.

DESCRIPTION

The Tactical Electric Power (TEP) program consists of small (2–3 kilowatt [kW]), medium (5–60kW), and large (100–840kW) electrical power generating systems, trailer-mounted power units and power plants, and electrical distribution equipment that provide standardized power management solutions to all Department of Defense agencies and numerous Allied nations. The Project Manager–Mobile Electric Power systems:

- Maximize fuel efficiency
- Increase reliability (500–600 hours mean time between failure), maintainability, and transportability
- Minimize weight and size while meeting all user requirements

- Operate at rated loads in all military environments
- Reduce infrared signature and noise (less than 70 decibels at seven meters)
- Are survivable in chemical, biological, and nuclear environments
- Meet power generation and conditioning standards in accordance with military standards (MIL-STD 1332)
- Provide quality electric power for command posts; command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems; weapon systems; and other battlefield support equipment

TEP systems provide essential power for Brigade Combat Team command posts, air defense, aviation, field artillery, force provider, and combat support and service support systems. The military-ruggedized commercial components use alternative and renewable energy sources. The TEP has a variety of generator set sizes: 2kW Military Tactical Generator (MTG), 3kW Tactical Quiet Generator (TQG), 5kW TQG, 10kW TQG, 15kW

TQG, 30kW TQG, 60kW TQG, 100kW TQG, 200kW TQG, and 840kW DPGDS; of these, the 2kW MTG and 3kW TQG are man-portable.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

- **FY08–09:** Fielded the 15kW “B” Model TQG
- **FY08–09:** Advanced Medium Mobile Power Sources (AMMPS) (next generation of medium TEP sources) continued in Phase 2, system demonstration
- **2QFY09:** First delivery of AMMPS pre-production test models
- **3QFY09–1QFY10:** AMMPS developmental and operational testing
- **FY09–10:** Production and fielding ongoing for 2kW MTG, 3kW, 5kW, 10kW, 15kW, 30kW, 60kW, 100kW, and 200kW TQG
- **FY09–10:** Continue assembly and fielding of power units and power plants (trailer-mounted generator sets)

- **FY09–10:** Production and fielding ongoing for Power Distribution Illumination System Electrical (PDISE)

PROJECTED ACTIVITIES

- **1QFY11:** 3kW TQG rebuy contract award
- **1QFY11:** Large Advanced Mobile Power Sources Milestone B
- **2QFY11:** 2kW MTG rebuy contract award
- **2QFY11:** AMMPS Milestone C and full-rate production contract
- **FY10–11:** Continue production and fielding of MTG and TQG generator sets, power units, and power plants
- **FY10–11:** Continue production and fielding of PDISE

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Tactical Electric Power (TEP)

FOREIGN MILITARY SALES

TQGs have been purchased by 38 countries

CONTRACTORS

3kW, 5kW, 10kW, 15kW, 100kW, and 200kW TQG:

DRS Fermont (Bridgeport, CT)

30kW, 60kW TQG:

L-3 Westwood (Tulsa, OK)

2 kW MTG:

Dewey Electronics (Oakland, NJ)

Deployable Power Generation and Distribution System (DPGDS):

DRS Fermont (Bridgeport, CT)

Power Distribution Illumination System Electrical (PDISE):

Fidelity Technologies Corp. (Reading, PA)

Trailers for Power Units and Power Plants:

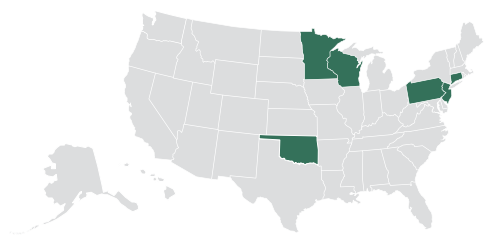
Schutt Industries (Clintonville, WI)

Advanced Medium Mobile Power

Sources 5–60kW:

Cummins Power Generation

(Minneapolis, MN)



Tank Ammunition (TA)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides overwhelming lethality overmatch in tank ammunition.

DESCRIPTION

The current 120mm family of tactical tank ammunition consists of fourth-generation kinetic energy, multipurpose, and canister ammunition. Kinetic Energy ammunition lethality is optimized by firing a maximum-weight sub-caliber projectile at the greatest velocity possible, defeating advanced threat armor. The M829A3 kinetic energy cartridge provides armor-defeat capability. Multipurpose ammunition uses a high-explosive warhead to provide blast, armor penetration, and fragmentation effects. The shotgun shell-like M1028 canister cartridge provides the Abrams tank with effective, rapid, lethal fire against massed assaulting infantry, and is also used in training. The 120mm family has dedicated training cartridges in production: M865, with its reduced range, simulates sabot trajectory to 2,500 meters; and M1002, which simulates the M830A1 size, weight, and nose switch.

To support the Stryker force, the 105mm Mobile Gun System uses M1040 canister cartridges. The M1040 canister cartridge provides rapid, lethal fire against massed assaulting infantry at close range, and is also used in training. The M467A1 training cartridge, which is ballistically matched to the M393A3 cartridge, completed production in FY10.

SYSTEM INTERDEPENDENCIES

The Abrams Main Battle Tank fires 120mm ammunition; the Stryker Mobile Gun System fires 105mm ammunition.

PROGRAM STATUS

- **FY10:** M829A3, M830, M830A1, M1002 and M908, M1028, M1040, M393A3, M467A1 are fielded

PROJECTED ACTIVITIES

- **FY11:** M865, M1002, and M1040 in production

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Tank Ammunition (TA)

FOREIGN MILITARY SALES

M831A1 and M865:

Iraq

KE-WA1:

Kuwait

CONTRACTORS

M1002 and M865:

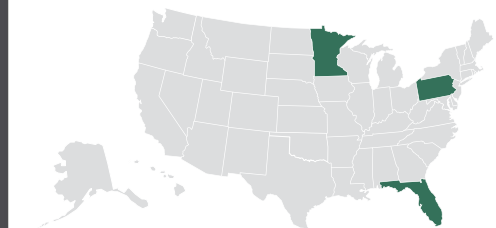
Alliant Techsystems (Plymouth, MN)

M1002, M865, and KEW:

General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)

M1040:

L-3 Communications (Lancaster, PA)



Test Equipment Modernization (TEMOD)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Improves readiness of Army weapon systems; minimizes test, measurement, and diagnostic equipment proliferation and obsolescence; and reduces operations/support costs.

DESCRIPTION

The Test Equipment Modernization (TEMOD) program procures general purpose electronic test equipment that is essential to the continuing support of weapon systems required by current/future forces. Acquisitions are commercial items that have significant impact on readiness, power projection, safety, and training operations of the United States Army, Army Reserve, and National Guard. The TEMOD program has procured 38 products replacing over 334+ models.

Radar Test Set Identification Friend or Foe Upgrade Kit and Radar Test Set with Mode S enhanced and Mode 5 cryptography (TS-4530A/UPM) is used to perform pre-flight checks on aviation and missile transponders and interrogators to alleviate potential fratricide concerns. It is also required to ensure all Army platforms are in compliance with European and Federal Aviation Administration airspace mandates.

Signal Generators, low frequency (SG-1364/U) and high frequency (SG-1366/U) are signal sources to test electronic receivers and transmitters of all types throughout the Army and provide standards to compare signals. They ensure that battlefield commanders can communicate in adverse conditions.

Telecommunication System Test Set (TS-4544/U) measures and displays various bit-data information as related to digital transmission.

Multimeter (AN/GSM-437) enables quick, reliable troubleshooting which positively affects operational availability.

Radio Test Set (AN/PRM-36) will be used to quickly and effectively diagnose the SINCGARS, ARC-186, ARC-201, GRC-245, PRC-148, PRC-150, and PSC-5 Radios at the Field maintenance level.

SYSTEM INTERDEPENDENCIES

None

PROGRAM STATUS

Low Frequency Signal Generator:

- **3QFY09:** Product verification testing (PVT)
- **2QFY09:** Issued letter request for bid samples
- **4QFY10:** Full-rate production (FRP)

High Frequency Signal Generator:

- **4QFY10:** Contract awarded

Telecommunication System Test Set:

- **3QFY10:** Issued letter request for bid samples

Multimeter:

- **4QFY10:** Issued letter request for bid samples

Radio Test Set:

- **3QFY10:** Issued letter request for bid samples

PROJECTED ACTIVITIES

IFF Radar Test Set Mode S (Enhanced) Mode 5:

- **1QFY11:** Low-rate initial production (LRIP)
- **2QFY11:** PVT
- **3QFY11:** FRP

High Frequency Signal Generator:

- **1QFY11:** LRIP
- **2QFY11:** PVT
- **1QFY12:** FRP

Telecommunication System Test Set:

- **4QFY11:** Contract award
- **1QFY12:** LRIP
- **3QFY12:** PVT
- **2QFY13:** FRP

Multimeter:

- **2QFY11:** Contract award
- **3QFY11:** LRIP
- **1QFY12:** PVT
- **1QFY12:** FRP

Radio Test Set:

- **2QFY11:** Contract award
- **3QFY11:** LRIP
- **4QFY11:** PVT
- **3QFY12:** FRP

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support



Radar Test Set TS-4530A/UPM



Signal Generator SG-1366/U



Telecommunication System Test



Multimeter AN/GSM-437



Radio Test Set AN/PRM-36



Signal Generator SG-1364/U



Test Equipment Modernization (TEMOD)

FOREIGN MILITARY SALES

IFF Radar Test Set Mode S (Enhanced) Mode 5:

Azerbaijan, Greece, Hungary, Kuwait, Netherlands, Norway, Portugal, Saudi Arabia, Singapore, United Kingdom

CONTRACTORS

IFF Radar Test Set Mode S (Enhanced) Mode 5:

Tel-Instrument Electronics Corp.
(Carlstadt, NJ)

Low Frequency Signal Generator:

Rohde & Schwarz (Columbia, MD)

High Frequency Signal Generator:

To be determined

Telecommunication System Test Set:

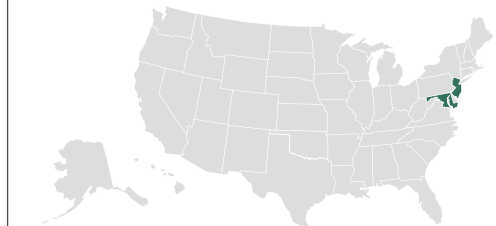
To be determined

Multimeter:

To be determined

Radio Test Set:

To be determined



Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Facilitates movement, management, and control of personnel, equipment, and supplies from a home station to a theater of operations and back, and provides in-theater support for onward movement, sustainment planning requirements, and source in transit visibility data.

DESCRIPTION

The Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II) is a service migration system. Characteristics include: source feeder system to Joint Force Requirements Generation II, Joint Planning and Execution System, Global Transportation Network, and Services' command and control systems; common user interface to facilitate multi-service user training and operations; commercial off-the-shelf hardware/software architecture; net-centric implementation with breakaway client-server and/or stand alone/workgroup configurations; incremental, block upgrade developmental strategy.

SYSTEM INTERDEPENDENCIES

Joint-Automatic Identification Technology (J-AIT)

PROGRAM STATUS

- **2QFY07–1QFY09:** Continue Block 2 fielding
- **2QFY07–1QFY09:** Completed development of Block 3, which provided combatant commanders a reception, staging, onward movement, and integration capability, directly supporting in-theater transportation movement activities
- **2QFY07–1QFY09:** Successful test of Block 3, favorable milestone decision to field Block 3
- **2QFY07–1QFY09:** Begin fielding of Block 3
- **2QFY09–1QFY11:** Complete fielding Block 2 and Block 3
- **2QFY09–2QFY10:** Air Movement Release (AMR) Phase I development
- **3QFY09:** Completed TC-AIMS II version 5 (Lindenhurst)
- **4QFY10:** Complete TC-AIMS II version 6 (Barstow)

PROJECTED ACTIVITIES

- **1QFY11:** TC-AIMS II reaches full operational capability
- **1QFY11:** Complete fielding Block 3
- **1QFY11:** Complete AMR Phase I fielding
- **1QFY11–1QFY12:** Complete AMR Phase II development
- **2QFY11:** Complete TTN prototype
- **4QFY11:** Complete TOPS fielding in CENTCOM AOR (TLW Retirement)
- **4QFY12:** Complete TC-AIMS II version 7 (Wilton); provide Vista/Windows 7 compatibility, data checks/validations; publish CMP to SIPRNET
- **4QFY12:** Complete AMR Phase II fielding
- **3QFY13:** Complete TC-AIMS II version 8; Integrate with SLPC, migrate reference data

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

FOREIGN MILITARY SALES

None

CONTRACTORS

Systems Integration:

Engineering Research and Development

Command (Vicksburg, MS)

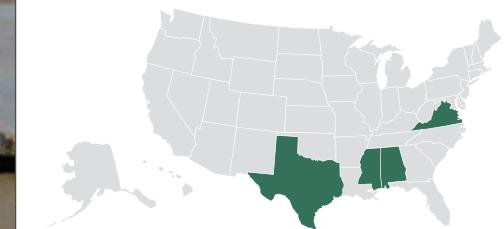
Future Research Corp. (Huntsville, AL)

Appticity Corp. (Dallas, TX)

Program and Fielding/Training support:

L-3 Services, an MPRI Company

(Alexandria, VA)



Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides long-range, heavy anti-tank and precision assault fire capabilities to Army and Marine forces.

DESCRIPTION

The Close Combat Missile System–Heavy (CCMS-H) TOW (Tube-Launched, Optically-Tracked, Wire-Guided) is a heavy anti-tank/precision assault weapon system, consisting of a launcher and a missile. The missile is six inches in diameter (encased, 8.6 inches) and 49 inches long. The gunner defines the aim point by maintaining the sight cross hairs on the target. The launcher automatically steers the missile along the line-of-sight toward the aim point via a pair of control wires or a one-way radio frequency (RF) link, which links the launcher and missile.

TOW missiles are employed on the High Mobility Multipurpose Wheeled Vehicle (HMMWV)-mounted Improved Target Acquisition System (ITAS), HMMWV-mounted M220A4 launcher (TOW 2), Stryker Anti-Tank Guided Missile (ATGM) Vehicles, and Bradley Fighting Vehicles (A2/A20DS/A20IF/A3) within the Infantry, Stryker,

and Heavy Brigade Combat Teams, respectively. TOW missiles are also employed on the Marine HMMWV-mounted ITAS, HMMWV-mounted M220A4 launcher (TOW 2), LAV-ATGM Vehicle, and AH1W Cobra attack helicopter. TOW is also employed by allied nations on a variety of ground and airborne platforms.

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 has an advanced counteractive protection system capability and defeats all current and projected threat armor systems. The TOW 2B Aero flies over the target (offset above the gunner's aim point) and uses a laser profilometer and magnetic sensor to detect and fire two downward-directed, explosively-formed penetrator warheads into the target. The TOW 2B Aero's missile weight is 49.8 pounds (encased, 65 pounds).

The TOW Bunker Buster is optimized for performance against urban structures, earthen bunkers, field fortifications, and light-skinned armor

threats. The missile impact is at the aim point. It has a 6.25 pound, 6-inch diameter high-explosive, bulk-charge warhead, and its missile weighs 45.2 pounds. The TOW BB has an impact sensor (crush switch) located in the main-charge ogive and a pyrotechnic detonation delay to enhance warhead effectiveness. The PBXN-109 explosive is housed in a thick casing for maximum performance. The TOW BB can produce a 21- to 24-inch diameter hole in an 8-inch thick, double-reinforced concrete wall at a range of 65 to 3,750 meters.

SYSTEM INTERDEPENDENCIES

M1121/1167 HMMWV, Stryker ATGM, ITAS

PROGRAM STATUS

- **Current:** TOW 2B and BB RF in production

PROJECTED ACTIVITIES

- **FY11–FY15:** TOW MY

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Tube-Launched, Optically-Tracked, Wire-Guided (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

TOW 2B Aero and TOW BB

Prime:

Raytheon Missile Systems (Tucson, AZ)

Control Actuator, Shutter Actuator:

Moog Inc. (Salt Lake City, UT)

Warheads:

Aerojet General (Socorro, NM)

Gyroscope:

BAE Systems (Cheshire, CT)

Sensor (TOW 2B only):

Thales (Basingstoke, United Kingdom)

Launch Motor:

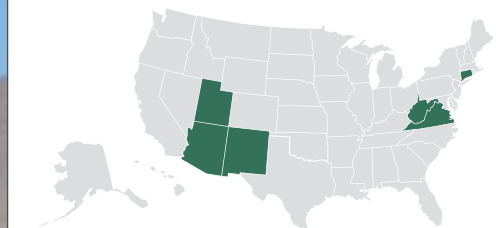
ATK (Radford, VA)

Flight Motor:

ATK (Rocket Center, WV)

Machined/Fabricated Parts:

Klune (Spanish Fork, UT)



Unit Water Pod System (Camel II)

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Receives, stores, and dispenses potable water to units at all echelons throughout the battlefield.

DESCRIPTION

The Unit Water Pod System (Camel II) is the U.S. Army's primary water distribution system. Camel II replaces the M107, M149, and M1112 series water trailers. It consists of an 800–900 gallon capacity baffled water tank with integrated freeze protection and all hoses and fittings necessary to dispense water by gravity flow. The acquisition strategy consists of two increments: Increment 1 is the basic system with freeze protection; Increment 2 will provide modular component(s) to give the Camel II water chilling, pumping, circulation, and on-board power generation as add-on capabilities.

The Camel II is mounted on a M1095 Trailer, allowing for better transportability on and off the road by utilizing the Family of Medium Tactical Vehicle Trucks. It holds a minimum of 800 gallons of water and 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. It is operational from -25 to +120 degrees Fahrenheit. The system also contains six filling positions for filling canteens and five gallon water cans.

SYSTEM INTERDEPENDENCIES

M1095 Medium Tactical Vehicle Trailer, Family of Medium Tactical Vehicle (FMTV) Trucks

PROGRAM STATUS

- **FY10:** Contract awarded

PROJECTED ACTIVITIES

- **FY11:** Deliver test units
- **FY11:** Conduct government testing
- **FY12:** Full materiel release; type classification standard
- **FY12:** First unit equipped

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

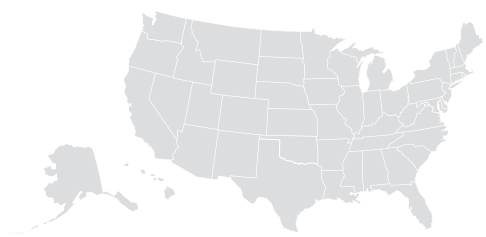
Unit Water Pod System (Camel II)

FOREIGN MILITARY SALES

None

CONTRACTORS

To be determined



Warfighter Information Network–Tactical (WIN-T) Increment 1

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides the warfighter seamless, assured, mobile communications, along with advanced network management tools.

DESCRIPTION

Warfighter Information Network–Tactical (WIN-T) Increment 1 is the Army’s current and future tactical network, representing a generational leap forward in allowing widely dispersed, highly maneuverable units to communicate. Increment 1 is a converged tactical communications network providing voice, data, and video capability to connect the battalion-level warfighter, allowing greater flexibility of troop movement and is scalable to meet the mission commander’s requirements. It is divided into two sub-increments defined as Increment 1a, “extended networking at-the-halt,” and Increment 1b, “enhanced networking-at-the-halt.” Increment 1 is a rapidly deployable, early entry system housed in a Lightweight Multipurpose Shelter (LMS) and mounted on an Expanded

Capacity High Mobility Multipurpose Wheeled Vehicle for roll-on/roll-off mobility.

Increment 1a upgrades the former Joint Network Node satellite capability to access the Ka-band defense Wideband Global Satellite, reducing the reliance on commercial Ku-band satellites.

WIN-T Increment 1b introduces the Net Centric Waveform, a dynamic waveform that optimizes bandwidth and satellite utilization. It also introduces a colorless core security architecture, which meets Global Information Grid Information Assurance security compliance requirements and incorporates industry standards for network operations and intrusion detection.

WIN-T Increment 1 is a Joint-compatible communications package that allows the warfighter to use advanced networking capabilities, interface to legacy systems, retain interoperability with Current Force systems, and keep in step with future increments of WIN-T.

SYSTEM INTERDEPENDENCIES

In this Publication

Advanced Field Artillery Tactical Data System (AFATDS), Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T), WIN-T Increment 2, WIN-T Increment 3

Other Major Interdependencies

ACUS Mod, Army Battle Command System, Command Post of the Future, CPP, GPS, LOS (WARCOMS), MBCOTM, MIL SATCOM, MSE, SICPS, Teleport, THAAD, TOCS, TROPO

PROGRAM STATUS

- **1QFY09:** Increment 1a initial operational test
- **2QFY09:** Increment 1b limited user test
- **4QFY09:** Initial operational capability

PROJECTED ACTIVITIES

- **1QFY12:** Increment 1b operational test

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Warfighter Information Network– Tactical (WIN-T) Increment 1

FOREIGN MILITARY SALES

None

CONTRACTORS

Modem/Integration:

General Dynamics C4 Systems, Inc.
(Taunton, MA)

Transportable Terminals:

General Dynamics SATCOM Technologies
(Duluth, GA)

PM Support:

Engineering Solutions and Products (ESP)
(Eatontown, NJ)
SRC (Shrewsbury, NJ)



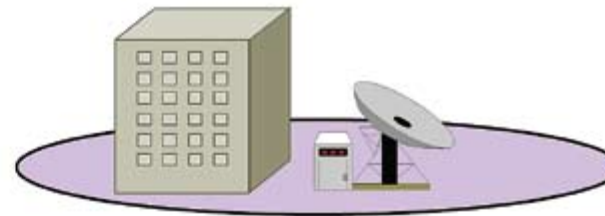
Joint Network Node (JNN)



Battalion Command Post Node

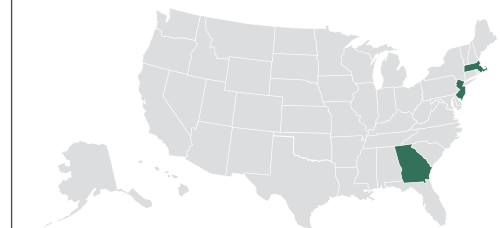


Tactical Hub



Fixed Regional Hub Node (FRHN)

Satellite Terminal Trailer (STT)



Warfighter Information Network–Tactical (WIN-T) Increment 2

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides “initial networking on-the-move” as a converged tactical communications and transport layer network leveraging proven commercial and government technology, enabling Joint land forces to engage enemy forces deeper and more effectively, while incurring fewer losses.

DESCRIPTION

Warfighter Information Network Tactical (WIN-T) Increment 2 accelerates delivery of a self-forming, self-healing mobile network infrastructure via commercial off-the-shelf and government off-the-shelf technologies. Increment 2 leverages an early release of the objective Highband Networking Waveform running on the Highband Networking Radio to provide high throughput line-of-sight communications and leverages an early release of the objective Net Centric Waveform on a ruggedized R-MPM-1000 modem for on-the-move (OTM) satellite communications enabling greater situational awareness and command and control. Multiple configuration items tailor capability

from division down to company. It provides an accelerated delivery of network operations capability that allows management, prioritization, and protection of information while reducing organizational and operational support.

Increment 2 network operations includes automated planning, on-the-move node planning, automated-link planning for currently fielded systems, initial automated spectrum management, initial quality of service planning and monitoring, and over-the-air network management and configuration of WIN-T radios. Additionally, Increment 2 network operations automates the initial Internet Protocol planning and routing configurations.

Fielding is planned to 41 Brigade Combat Teams and nine Divisions by 2017.

SYSTEM INTERDEPENDENCIES

Bradley Fighting Vehicle Systems Upgrade; Distributed Common Ground System–Army (DCGS-A); Integrated Air and Missile Defense (IAMD); Joint

Light Tactical Vehicle (JLTV); Joint Tactical Radio System Ground Mobile Radios (JTRS GMR); Joint Tactical Radio System Handheld, Manpack, Small Form Fit (JTRS HMS); Single Channel Ground and Airborne Radio System (SINCGARS); WIN-T Increment 1; WIN-T Increment 3

PROGRAM STATUS

- **1QFY09:** Developmental test
- **2QFY09:** Limited user test
- **2QFY10:** Milestone C, enter low-rate initial production

PROJECTED ACTIVITIES

- **1QFY11:** Product qualification test (Contractor)
- **2QFY11:** Logistics demonstration
- **3QFY11:** Product qualification test (Government)
- **4QFY11:** Force development test
- **1QFY12:** Initial operational test
- **2QFY12:** Full-rate production decision review
- **2QFY12:** Cold region test
- **3QFY12:** First unit equipped
- **1QFY13:** Initial operational capability

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Warfighter Information Network-Tactical (WIN-T) Increment 2

FOREIGN MILITARY SALES

None

CONTRACTORS

WIN-T System:

Prime

General Dynamics (Taunton, MA)

Subcomponent

Lockheed Martin (Gaithersburg, MD)

Subcontractors

Harris Corp. (Melbourne, FL)

L-3 Communications (San Diego, CA)

General Dynamics (Richardson, TX)

Initial Networking On The Move



WIN-T Inc 2 Point of Presence



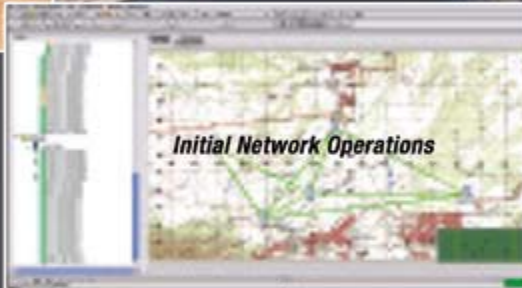
WIN-T Inc 2 Soldier Network Extension



Highband Networking Waveform Line of Sight Radio



Highband Networking Waveform Line of Sight Antenna



Initial Network Operations



< On-The-Move SATCOM Antenna

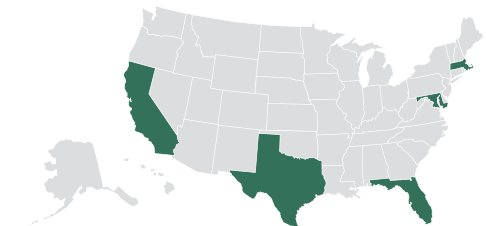


R-MPM 1000 Modem



WIN-T Inc 2 Tactical Communications Node (While Stationary)

WIN-T Inc 2 Tactical Communications Node (While Mobile)



Warfighter Information Network–Tactical (WIN-T) Increment 3

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides “full networking on-the-move” as a mobile, multi-tiered, tactical communications/transport layer network, enabling Joint land forces to engage enemy forces effectively.

DESCRIPTION

The Warfighter Information Network–Tactical (WIN-T) Increment 3 enables the full-objective mobile, tactical network distribution of command, control, communications, computers, intelligence, surveillance, and reconnaissance information via voice, data, and real-time video. Building on previous increments, Increment 3 provides more robust connectivity and greater network access via military specification radios, higher bandwidth satellite communications (SATCOM) and line-of-sight (LOS) waveforms, an aerial tier (LOS airborne relay), and integrated network operations. It manages, prioritizes, and protects information through network operations (network management, quality of service and information assurance) while reducing organizational and operational

support. WIN-T Increment 3 ensures communications interoperability with Joint, Allied, Coalition, Current Force, and commercial voice and data networks. Using communications payloads mounted on Unmanned Aerial Systems, Increment 3 introduces an air tier to increase network reliability and robustness with automatic routing between LOS and SATCOM. This extends connectivity and provides increased warfighter mobility, providing constant mobile communications.

SYSTEM INTERDEPENDENCIES

Bradley Fighting Vehicle Systems Upgrade, Distributed Common Ground System–Army (DCGS-A), Integrated Air and Missile Defense (IAMD), Joint Light Tactical Vehicle (JLTV), Joint Tactical Radio System Ground Mobile Radios (JTRS GMR), Joint Tactical Radio System Handheld, Manpack, Small Form Fit (JTRS HMS), Single Channel Ground and Airborne Radio System (SINCGARS), Stryker Family of Vehicles, WIN-T Increment 2, WIN-T Increment 1

PROGRAM STATUS

- **1QFY09:** 30-Node Engineering field test to demonstrate technology maturity

PROJECTED ACTIVITIES

- **2QFY12:** Transmission subsystem critical design review
- **3QFY13:** Full critical design review
- **4QFY13:** Transmission subsystem developmental test/limited user test
- **2QFY15:** Milestone C

ACQUISITION PHASE

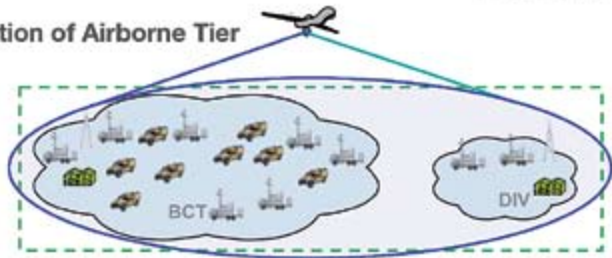
Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

Addition of Airborne Tier

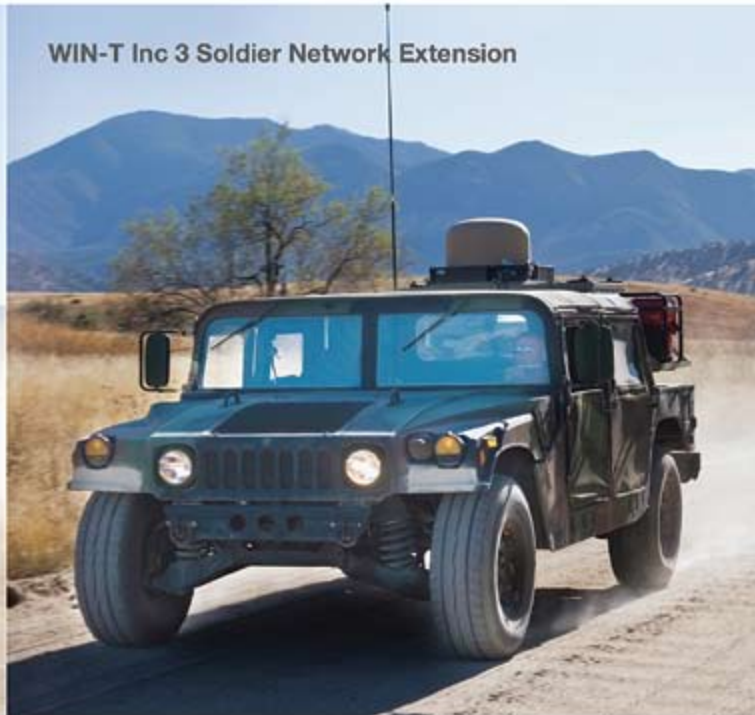


- Adds an airborne communications node as a third tier of tactical networked communications
- Provides a fully mobile and flexible network to a dispersed force of noncontiguous terrain
- Aerial tier increases throughput and reduces reliance on SATCOM

WIN-T Inc 3 Tactical Communications Node (While Mobile)



WIN-T Inc 3 Soldier Network Extension



Full Network Operations



Fully automated network operations—no pause in operations

2 ch & 4 ch JC4ISR

Air & Ground



Ground Only



Single chassis JC4ISR Radio that provides 4x network capacity as the LOS Inc 2 radio

Antenna

Ground Only
HRFU-MT



Air Only
HRFU-E_x



(High Band Frequency Unit)

Warfighter Information Network—Tactical (WIN-T) Increment 3

FOREIGN MILITARY SALES

None

CONTRACTORS

Prime:

General Dynamics (Taunton, MA;
Sunrise, FL)

Subcomponent:

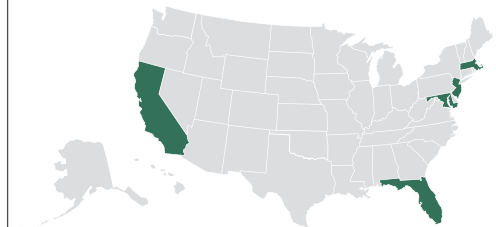
Lockheed Martin (Gaithersburg, MD)

Subcontractors:

Harris Corp. (Melbourne, FL)

BAE Systems (Wayne, NJ)

L-3 Communications (San Diego, CA)



Weapons of Mass Destruction Elimination

INVESTMENT COMPONENT

Modernization

Recapitalization

Maintenance

MISSION

Provides a mobile laboratory that enables weapons of mass destruction (WMD) civil support teams to perform on-site analysis of contaminants in support of first responders.

DESCRIPTION

Analytical Laboratory System (ALS) Increment 1 is a mobile analytical laboratory that provides the civil support team (CST) capabilities for detecting and identifying chemical, biological, or radiological contamination. ALS Increment 1 is a system enhancement program to replace the current Mobile ALS and interim Dismounted Analytical Platform. It provides advanced technologies with enhanced sensitivity and selectivity in the detection and identification of biological and chemical warfare agents and toxic industrial chemicals and materials.

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

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 reach-back communications for the ALS and acts as a command and control hub to deliver a common operational picture for planning and fulfilling an incident response. It provides:

- Digital voice and data over satellite network
- Secure Internet Protocol Router Network (SIPRNET) and Non-Secure (NIPRNET)
- Radio remote and intercom with cross-banding
- Over-the-horizon communication interoperable interface with state emergency management and other military units

The Common Analytical Laboratory System (CALs) provides a common CBRNE analytical capability across multiple domain spaces. Developed in both a mobile platform (light) as well as a semi-fixed site platform

(heavy), the CALs has a modular design that provides the necessary array of analytical, diagnostic, and investigative capabilities tailored for a specified mission or contingency operation. The system also provides voice and data communications to enhance assessment of and response to WMD events.

SYSTEM INTERDEPENDENCIES

Other Major Interdependencies
UCS

PROGRAM STATUS

ALS-1:

- **4QFY09:** Full operational capability
- 20th SUPCOM Light Lab:**
- **4QFY09:** Full operational capability

PROJECTED ACTIVITIES

20th SUPCOM Heavy Lab:

- **1QFY11:** Full operational capability
- 20th SUPCOM Monitoring Suites:**
- **4QFY11:** Full operational capability

ACQUISITION PHASE

Technology Development

Engineering & Manufacturing Development

Production & Deployment

Operations & Support

ALS ANALYTICAL LABORATORY SYSTEM



UCS UNIFIED COMMAND SUITE



Heavy Lab (20th SUPCOM)



Light Lab (20th SUPCOM)

Weapons of Mass Destruction Elimination

FOREIGN MILITARY SALES

None

CONTRACTORS

ALS:

Wolf Coach, Inc., an L-3 Communications Company (Auburn, MA)

UCS Vehicle:

Wolf Coach, Inc., an L-3 Communications Company (Auburn, MA)

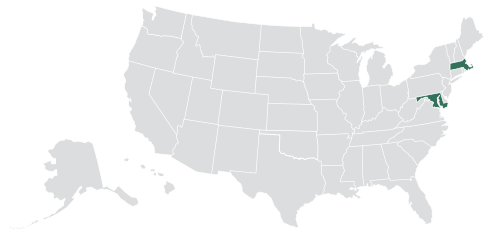
UCS Communications System

Integrator:

Naval Air Warfare Center Aircraft Division (Patuxent River, MD)

20th SUPCOM Heavy Lab:

ECBC (Edgewood, MD)



Science & Technology

The Army Science and Technology (S&T) strategy (Figure 1) supports the Army's goal to provide new technologies that enhance and modernize systems in the Current Force and that enable new capabilities in the Future Force. This strategy is effected through a portfolio with three types of investments, each providing different results in distinct timeframes.



Figure 1: Strategy—Develop and mature technology to enable the Future Force while seeking to enhance the Current Force

The three types of S&T investment are far-term, funding basic research for discovery and understanding of phenomena; mid-term, funding applied research component demonstrations within a laboratory environment; and near-term, funding advanced technology development system/sub-subsystem demonstrations in relevant (non-laboratory) environments (Figure 2). The technology demonstrations prove technology-enabled capabilities and concepts and their military utility which, then inform the combat developments process and provide the acquisition community with evidence of the technologies' readiness to satisfy system requirements. This portfolio also supports current overseas contingency operations in the following ways: (1) Soldiers benefit today from technologies that emerged from past S&T investments; (2) we exploit transition opportunities by accelerating mature technologies derived from ongoing S&T efforts; and (3) we leverage the expertise of our scientists and engineers to develop solutions to unforeseen problems encountered during current operations such as the armor applied to Mine-Resistant Ambush Protected (MRAP) combat vehicles for enhanced protection from rocket propelled grenades (RPGs). The entire S&T program is designed to be adaptable and responsive to the needs of the Army.

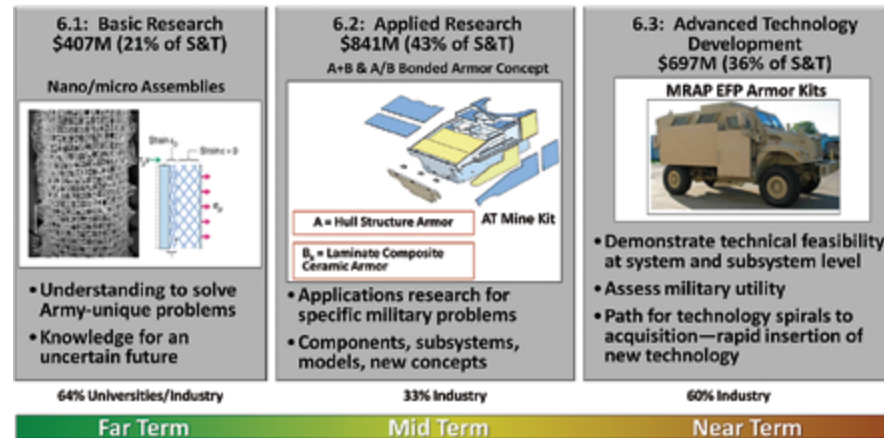


Figure 2: The S&T portfolio consists of three types of investments.

S&T INVESTMENT—FUTURE FORCE TECHNOLOGY AREAS

The diverse S&T portfolio is characterized in terms of Future Force Technology Areas. The investments in these areas are shown at right in a color depiction (Figure 3) that approximates their proportionate dollar value in FY11 by Technology Area.

Within these Technology Areas, the highest priority applied research and advanced technology development efforts are designated by Headquarters Department of the Army (HQDA) as Army Technology Objectives (ATOs). We do not designate ATOs within the basic research area since these investments fund sciences (discovery and understanding), not technology. The Army's Training and Doctrine Command/Army Capabilities Integration Center (TRADOC/ARCIC) represents the warfighter in the S&T ATO development process, and articulates the warfighter's needs to the S&T community through the development, staffing, and coordination of the TRADOC "warfighter outcomes." ATOs are focused efforts that develop specific S&T products designed to address warfighter Outcomes and meet agreed upon metrics. The goal of ATOs is to investigate and mature technologies that provide new or improved capabilities for acquisition programs. This goal requires a close working relationship with acquisition program managers/program executive offices (PM/PEOs) to ensure that the ATO output metrics are defined to be what the acquisition programs needs.

This S&T section of the *U.S. Army Weapon Systems 2011* handbook is organized by Future Force Technology Area. Selected ATOs are described within most of the Technology Areas. The complete portfolio of 89 ATOs is described in the 2010 Army Science and Technology Master Plan (distribution limited to government and current government contractors).



Figure 3: The Future Force technology area color bands shown on the left are approximately proportional to the financial investment within the Army's requested FY11 S&T budget. The specific technologies funded in these investment areas are aligned to the ten Comprehensive Warfighter Outcomes (CWO). The ten CWOs are the consolidation of TRADOC's Tier I warfighter outcomes. The warfighter outcomes articulate the warfighter capability needs.

Short descriptions of Future Force Technology Areas:

- **Force Protection** technologies enable Soldiers and platforms to avoid detection, acquisition, hit, penetration, and kill. These technologies include advanced armor, countermine, and counter improvised explosive devices (IEDs) detection and neutralization, and counter rocket, artillery, and mortars (CRAM) aircraft survivability and active protection systems.
- **Intelligence, Surveillance, and Reconnaissance (ISR)** technologies enable persistent and integrated situational awareness and understanding to provide actionable intelligence that is specific to the needs of the Soldier across the range of military operations.
- **Command, Control, Communications, and Computers (C4)** technologies provide capabilities for superior decision-making, including intelligent network decision agents and antennas to link Soldiers and leaders into a seamless battlefield network.

- **Lethality** technologies enhance the ability of Soldiers and platforms to provide overmatch against threat capabilities and include nonlethal technologies enabling tailorable lethality options.
- **Medical** technologies are developed to protect Soldiers by diagnosing and rendering initial treatment to combat casualties, preventing and treating infectious diseases, enhancing clinical care and rehabilitative medicine, while saving lives. They include technologies to enhance Soldier performance in extremely challenging environments imposed by physical and psychological demands on the battlefield, as well as extremes in topography and climate.
- **Unmanned Systems** technologies enhance the effectiveness of unmanned air and ground systems through improved perception, cooperative behaviors, and increased autonomy.
- **Soldier Systems** technologies provide materiel solutions that protect, network, sustain, and equip Soldiers, and non-materiel solutions that enhance human performance. Together these solutions enable Soldiers to adapt and dominate against any threat.
- **Logistics** technologies enhance strategic response and reduce logistics demand. Focus is on technologies that increase efficiency of systems or subsystems or sustainment processes that enable production of consumables closer to the point of use, that conserve or reduce demand for consumables (such as fuel and water), and that enhance the nation's assurance of sufficient energy for Army missions.
- **Military Engineering and Environment** technologies enhance deployability and sustainability. These technologies also enable sustainment of training and testing range activities.
- **Advanced Simulation** technologies provide increasingly realistic training and mission rehearsal environments to support battlefield operations, system acquisition, and requirements development.
- **Rotorcraft** technologies enhance the performance and effectiveness of current and future rotorcraft while seeking to reduce operational and sustainment costs.
- **Basic Research** investments seek to develop new understanding to enable revolutionary advances or paradigm shifts in future operational capabilities.

FORCE PROTECTION

Kinetic Energy Active Protection System

The Kinetic Energy Active Protection System ATO will demonstrate the capability to defeat tank-fired kinetic energy rounds. This program develops warhead and interceptor designs and conducts robust component and interceptor testing.



Figure 4: Kinetic Energy Active Protection System

Threat and Minefield Detection Payload for Shadow Tactical Unmanned Aerial Vehicle

The Tactical Unmanned Aerial Vehicle (TUAV) ATO matures and demonstrates a payload incorporating multi/hyper-spectral imaging sensors, adaptive spectral detection, and change detection algorithms. The TUAV payload demonstrates real-time detection of roadside threats, threat deployment activity, and minefields at realistic mission altitudes. It also provides an advanced reconnaissance, surveillance, and target acquisition capability for detection of difficult targets.

Advanced Aircraft Survivability

The Advanced Aircraft Survivability (AAS) ATO develops and demonstrates an integrated, multi-spectral (ultra violet [UV], infrared [IR], acoustic), and distributed aperture aircraft survivability solution to simultaneously detect, identify, and cue integrated counter-measures against currently operational and emerging hostile fire and Man Portable Air Defense (MANPAD) technology threats. Elements of this program include: improved missile and small arms fire detection sensors; a lightweight laser countermeasure for MANPAD missiles and integrated visual laser dazzling of small arms threats; lightweight beam directors; and closed-loop threat identification techniques.

Detection for In-Road Threats

This ATO matures and demonstrates an advanced mine- and threat-detection capability to address a broader spectrum of in-road threats—including those deeply buried—at higher rates of advance for modular engineer platforms and the Early Infantry Brigade Combat Team (E-IBCT). In order to meet current and Future Force needs, this effort matures and then integrates ground-penetrating radar and metal-detection technologies onto vehicles to detect the evolving underbelly threat on primary and secondary roads. The technologies demonstrated include an optimized metal detector, a downward-looking ground penetrating radar, signal processing, and algorithms optimized for both shallow and deep targets.

Extended Area Protection & Survivability (EAPS) Integrated Demo

The Extended Area Protection and Survivability (EAPS) ATO is developing and demonstrating critical technologies to provide the capability to defeat rockets, artillery, and mortars (RAM) at extended ranges. The EAPS effort is developing two missile concepts and one gun concept to provide mobile, 360-degree hemispherical area protection to meet the objective Counter-RAM requirements.

This effort includes subsystems development of the technical fire control node to process the decision logic for intercept, the tracking and fire control radar to provide a precise location of the threat, the launch system, and the interceptors. The EAPS effort will demonstrate intercept of single RAM threats and multiple simultaneous RAM threats. The system architecture is being developed to integrate with the architecture being developed by Program Manager Counter-Rocket, Artillery, and Mortar, Program Executive Office, Command, Control, and Communications Tactical.

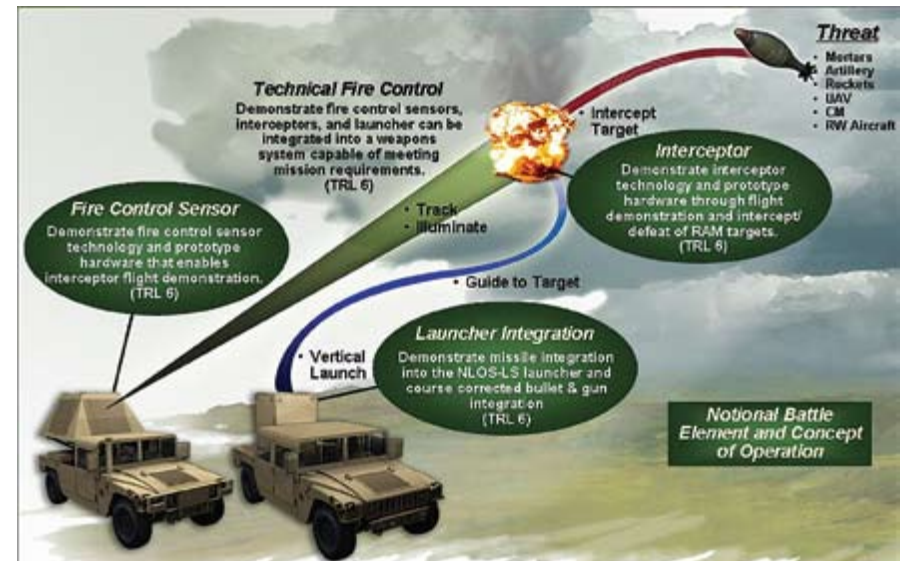


Figure 5: Extended Area Protection & Survivability (EAPS) Integrated Demo

INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE

Battlespace Terrain Reasoning Awareness—Battle Command

This ATO provides integrated battle command capabilities to create and utilize actionable information from terrain, atmospheric, and weather effects on systems, platforms, and Soldiers. This will enable agile, integrated ground and air operations in all operational environments. An initial spiral of urban-based technologies from the Network-Enabled Command and Control ATO program will be incorporated, resulting in a net-centric, terrain reasoning service, embedded with battle command applications.

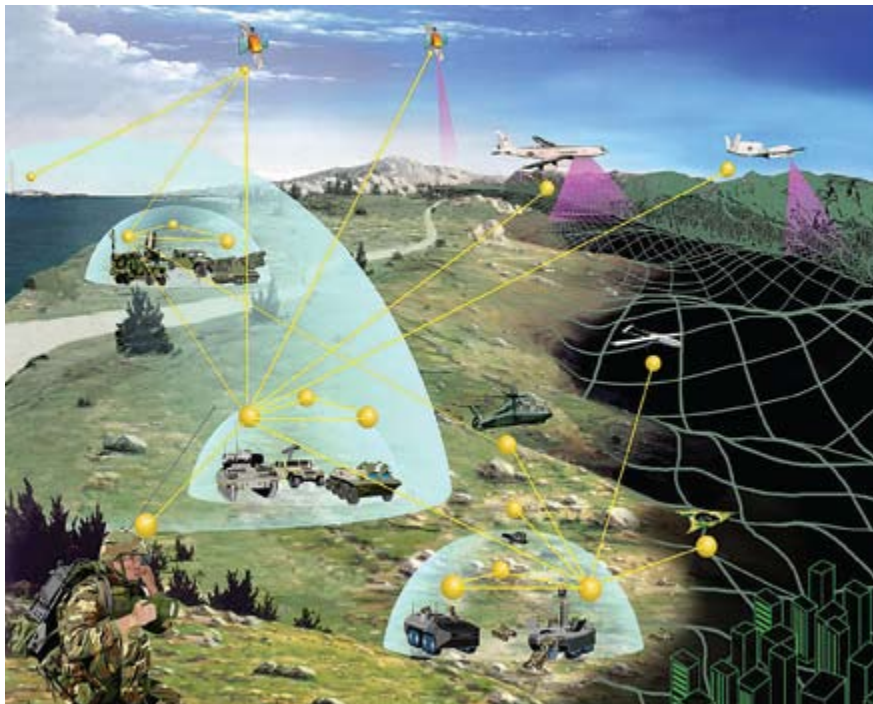


Figure 6: Battlespace Terrain Reasoning Awareness—Battle Command

This effort is working with key transformational battle command programs and TRADOC schools to (1) conduct controlled demonstrations to gain insight into effectively integrating actionable terrain, atmospheric, and weather information into battle command system-of-systems (SoS), staffs, processes, and functions; (2) improve, extend, and mature terrain- and weather-based information products and embedded applications within battle command SoS; (3) transition capabilities to the Distributed Common Ground System—Army (DCGS-A), BCT, and commercial joint mapping toolkit; and (4) support the development of a geo-battle management language that extends the current model to include representation of actionable terrain, weather, and atmospheric information.

Target Location Designation System

This ATO demonstrates an improved, man-portable, target acquisition and laser designation system with reduced size, weight, and power. This ATO provides: (1) an improved mid-wave IR focal plane array; (2) a common designator module using end-pumped, mono-block laser technology; and (3) precision target location through an improved global positioning, gyroscope, and magnetometer. The results of this effort will demonstrate to the warfighter improvements in real-time target acquisition, precision target location, and laser designation capabilities that increase combat effectiveness and lethality. The overall result will be an increased target acquisition range that provides greater standoff range and increased Soldier survivability, while the reduced weight will achieve greater Soldier mobility.

Advanced Common Sensor Payload

The Advanced Common Sensor Payload ATO provides day/night wide-area persistent imaging and enhanced reconnaissance, surveillance, and target acquisition capabilities for insertion into the common sensor payload (CSP). There will be two CSP variants—one with a high-definition sensor and the other with a dual-color, third-generation, forward-looking radar. Both of these systems will have the following capabilities: Step Stare Software that provides persistent imaging scan modes to improve resolution and Tiered Data Processing that adds onboard modules for enhanced data exploitation and compression to allow operation over existing extended-range and multipurpose data links. The payoff will be a payload that provides persistent wide-area activity monitoring and enhanced capabilities to include target search at ID resolution, reduced operator workloads, and improved data exploitation.

IRON Symphony

The IRON Symphony ATO defines and develops a next-generation Army Electronic Warfare (EW) networking capability, based on an integrated and distributed EW framework, to enable the coordinated detection, geolocation, reporting, and engagement of multiple diverse threat waveforms. Most current EW systems are designed to mitigate a single threat waveform. Multiple threats force the development of multiple systems, resulting in a rapid escalation of interoperability and spectral de-confliction issues. The robust proliferation and simultaneous use of modern communication threats, as well as the complexity of the threat signals themselves, have created an environment where the use of individualized solutions is no longer feasible.

Flexible Display Technology for Soldiers and Vehicles

This ATO develops flexible display technologies for affordable, lightweight, rugged, low-power, and reduced-volume displays in conjunction with the development of human factors parameters for systems utilizing flexible displays. Flexible displays have reduced weight and are inherently rugged with ultra-low power electro-optic technologies, compared with traditional liquid-crystal, glass-based displays. The development of displays on flexible substrates enables novel applications that cannot be achieved by glass-based technologies (e.g., wearable and conformal for Soldier applications, conformal for vehicle and cockpit applications, and compact display that can be rolled out for multiuser applications). This ATO program is coordinated with human factors studies to optimize design trade-offs and will produce flexible, four-inch diagonal displays (greater than 320 x 240 resolution), as well as technology for color emissive and reflective displays. Benefits to the warfighter include a 60 percent weight reduction of display components compared to glass displays, and a 30 to 90 percent power reduction compared to liquid crystal displays.



Figure 7: Flexible Display Technology for Soldiers and Vehicles

COMMAND, CONTROL, COMMUNICATIONS, AND COMPUTERS (C4)

Collaborative Battlespace Reasoning and Awareness

The Collaborative Battlespace Reasoning and Awareness ATO develops and demonstrates multiplatform, cross community applications and software services that support the integration and synchronization of intelligence and operations functions through the design, development, and implementation of information interoperability, and through collaborative management and decision-support technologies. This ATO also develops and demonstrates systems that will improve mission execution success by providing software to more tightly couple operations and intelligence and to better facilitate collaboration. Research and development is focused on mapping intelligence and geospatial information requirements to military tasks. This effort enables faster and higher quality decision cycles and increased battle command unification through collaboration and real-time sharing, exploitation, and analysis of information to support the operational mission, tasks, and desired effects.

RF Adaptive Technologies Integrated with Communications and Location

This ATO develops and demonstrates Radio Frequency (RF) dynamic spectrum technologies for tactical communications and improved position determination in Global Positioning System (GPS)-degraded environments (Figure 8). The ATO efforts include the development of a software module that enables spectrum policy management for dynamic spectrum access-enabled radios, architecture to integrate and enhance disruption tolerant networking (DTN) in the tactical environment, and a software module that improves position determination based on net-assisted GPS and RF ranging technologies. This ATO builds upon the Defense Advanced Research Projects Agency (DARPA) Wireless Network After Next (WNAN) program to provide consistent dynamic spectrum policy management using software implementation, ensure reliable message delivery in a disruptive communications environment by enhancing and extending the DTN technology into tactical networks, mitigate multipath interference through RF ranging, and improve GPS performance through net-assisted GPS technologies.

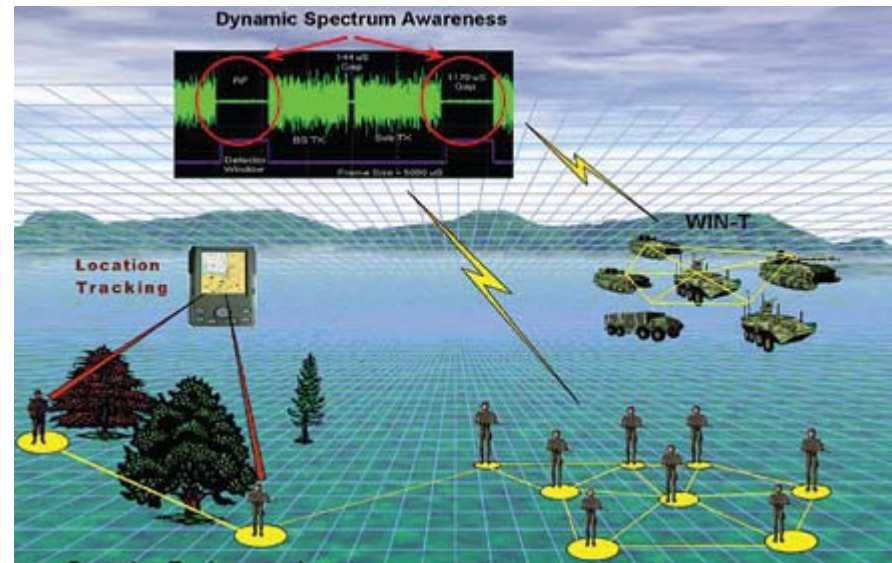


Figure 8: RF Adaptive Technologies Integrated with Communications and Location (RADICAL)

LETHALITY

Advanced Lasers and Unmanned Aerial System Payloads

This ATO develops, integrates, and demonstrates a seven-pound advanced sensor payload with laser rangefinding and laser designating capabilities to address the reconnaissance, surveillance, and target acquisition mission requirements for the BCT Class I unmanned aerial system (UAS). Under this ATO, new multifunction lightweight lasers, optical receiver components, and electronics suitable for UAS and other Soldier applications are developed. The new laser components will be integrated with a compact, small-pixel, uncooled IR imaging sensor into a two-axis pointing platform (gimbal) to enable an airborne organic laser designation capability for the lower echelon warfighter. The advanced lasers and UAS sensor payload will enable Soldiers to quickly see and characterize potential targets as well as nontarget objects that are in the open or in complex and urban terrain, and support beyond-line-of-sight situational awareness, targeting, and engagement with precision weapons. A parallel Manufacturing Technology effort seeks to develop an optimized manufacturing process for a universal, monoblock laser designator module component that can be integrated into a wide variety of laser applications.

Applied Smaller, Lighter, Cheaper Munitions Components

Affordably reducing space, weight, and power at the component level remains essential to increasing affordable precision munition lethality for full spectrum operations, particularly military operations on urban terrain (MOUT) (Figure 9). This ATO focuses on developing increasingly smaller, lighter, cheaper components and subsystems that enhance current system capabilities against asymmetric threats and mature technologies for next-generation small precision munitions. Primary investment areas include: nano/advanced composite structures and new fabrication techniques to save weight while maintaining or enhancing structural and thermal properties; miniaturized electronics to reduce size and weight, and support increased processing demands for capability enhancements like image stabilization; sensor/image processing for MOUT environments, including people tracking; and warhead safe and arm integration for precision lethality against expanded target sets in urban terrain. Major warfighter payoffs are enhanced precision lethality and cost savings through common components.

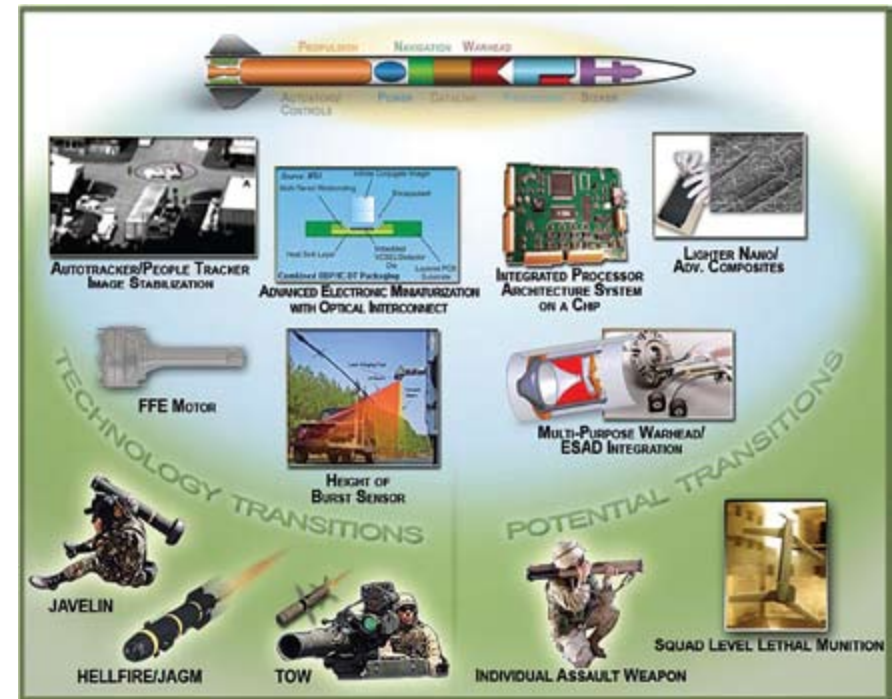


Figure 9: Applied Smaller, Lighter, Cheaper Munitions Components

Scalable Technology for Adaptive Response

The Scalable Technology for Adaptive Response (STAR) ATO matures and demonstrates new energetic materials, fuzes, and warhead technologies designed to provide selectable and scalable effects against platforms and personnel. The STAR ATO will demonstrate technologies for selectable lethal effects in large-, medium-, and small-diameter munitions and missiles; as well as the development of controlled lethal effects, multipurpose energetics and formulations, reactive materials, and advanced fuzing and power technologies. The STAR ATO will demonstrate scalable lethality within 250mm (Guided Multiple Launch Rocket System), 155mm (Excalibur), and 30mm (M789/Mk238) munitions validating improved weapon effectiveness and lethality and reduced collateral damage and logistics.

MEDICAL

Psychological Resetting after Combat Deployment: Advanced Battlemind

This ATO develops and validates an advanced unit-training program to reduce combat-related psychological problems, including symptoms related to mild traumatic brain injury (mTBI) and post-traumatic stress disorder (PTSD) during the post-deployment resetting phase. The goal of this effort is to facilitate recovery from psychological injuries related to combat, build individual and unit resilience in preparation for subsequent deployments, reduce the incidence of debilitating symptomatic problems, and reduce risk-taking behaviors that have the greatest impact on a Soldier's mental health, well-being, relationships, and job performance. An in-depth, six-session training package will be developed that integrates state-of-the-art cognitive-behavioral approaches to traumatic stress, while maintaining the focus on Soldier strengths, unit cohesion, leadership skills, and individual cognitive skill building. The package incorporates cognitive education strategies shown to be effective in reducing symptoms from mTBI, which often overlaps with PTSD. Finally, this ATO benchmarks key deployment-related behavioral health reactions and develops and validates novel approaches to assessing the psychological transition home following a combat deployment in order to determine the effectiveness of the proposed early intervention.

Damage Control Resuscitation

This ATO pursues the best combination and optimal use of alternatives to whole blood (e.g., plasma, red blood cells, blood-clotting agents) to prevent bleeding and maintain oxygen delivery and nutrients to damaged tissue (Figure 10). These products enhance survival of casualties after severe blood loss, which is the leading cause of death to injured warfighters. Recent data from the battlefield suggests that blood-clotting disorders and immune system activation, which damages normal cellular metabolic processes, commonly occur in severely injured patients. Therefore, a priority is to maintain blood-clotting capability and oxygen and nutrient delivery to tissues by using the best resuscitation products that can be administered at far forward deployed locations.



Figure 10: Damage Control Resuscitation

Drug for the Treatment of Traumatic Brain Injury (TBI)

This ATO is testing a candidate drug to treat TBI to determine its safety and effectiveness in 200 human subjects who have suffered TBI. TBI survivors often have physical and cognitive impairment, memory loss, and mood and personality disorders and currently no drugs exist to treat or reduce these brain-related injuries. It is estimated that 15 to 25 percent of all injuries in recent conflicts are to the head.

Prophylactic Drugs to Prevent Drug-Resistant Malaria

This ATO develops candidate antimalarial preventive drugs and tests these candidates in animals. Successful completion of this ATO will allow clinical testing of candidates in humans, potentially leading to a safe and effective replacement antimalarial preventive drug. The goals in developing these candidate preventive drugs are to replace the current drugs that are becoming

less effective due to the emergence of drug resistant malaria parasites, to reduce or eliminate unwanted side effects that impact Soldiers' use of the drugs, and to allow for a less critical and more convenient dosing schedule for deployed Soldiers. These new drugs will also increase operational readiness by maintaining a healthy force, as well as reducing the logistical and combat health support burden associated with treatment in theater or after evacuation.

Alternative Dengue Fever Vaccine Strategy

This ATO develops a strategy for developing single vaccine that is effective against the four major types of Dengue. This strategy should demonstrate human safety and provide initial data on the body's immune response. The current live-attenuated dengue virus vaccine in advanced development is suboptimal for rapid deployment since it requires two doses at six month intervals. Successful completion of this ATO will produce a vaccine strategy that will lead to a more rapid and complete protection from dengue infection.

Candidate Multivalent Vaccine Against HIV-1

This ATO seeks to evaluate novel Human Immunodeficiency Virus (HIV-1) vaccination strategies using a modified virus as the delivery vehicle of candidate vaccines into the human body. The objective is to demonstrate that these vaccines are safe for human subjects and capable of inducing an immune response which protects against HIV-1.

UNMANNED SYSTEMS

Safe Operations of Unmanned Systems for Reconnaissance in Complex Environments

This ATO develops, integrates, and demonstrates robust robotic technologies required for Future Modular Force unmanned systems (Figure 11). The ATO advances the state of the art in perception and control technologies to permit unmanned systems (UMS) to autonomously conduct missions in populated, dynamic urban environments while adapting to changing conditions; develop initial tactical/mission behavior technologies to enable a group of heterogeneous UMS to maneuver in collaboration with mounted and dismounted forces; optimize soldier operation of UMS; and provide improved situational awareness for enhanced survivability. Modeling and simulation will be used to develop, test, and evaluate the unmanned systems technologies (e.g., tactical behaviors and perception algorithms). Test bed platforms with software, appropriate mission modules, and associated hardware developed under this program support warfighter experiments in a militarily significant environment in conjunction with TRADOC.



Figure 11: Safe Operation of Unmanned Systems for Reconnaissance in Complex Environments

SOLDIER SYSTEMS

Soldier Planning Interfaces and Networked Electronics

This ATO develops a government-owned, Soldier-borne electronic equipment architecture that incorporates a National Security Agency-approved wireless personal area network subsystem (Figure 12). The Soldier Planning Interfaces and Networked Electronics (SPINE) ATO reduces the Soldier-borne footprint and electronics system weight by 30 percent through the loss of wires and connectors. The wireless network will be powered by a conformal battery currently under development that increases power by 50 percent for a 24-hour period. Additionally, the ATO utilizes emerging software services to enable Soldier connectivity and data exchange to current and future tactical radio networks and battle command systems. Throughout this effort, capability demonstrations are conducted at the C4ISR On The Move (OTM) test bed at Ft. Dix, NJ, to monitor progress.



Figure 12 : Soldier Planning Interfaces & Networked Electronics

High-Definition Cognition (HD-COG) In Operational Environments

This ATO researches real-time understanding of brain function in operational environments to allow matching of Soldier capabilities and advanced technologies. For example, vehicle crewstations could cue Soldiers based on how their brains process what they see, hear, and feel. Such neuro-ergonomic designs can exploit how the brain functions, providing tremendous Soldier performance improvements. This program develops technologies to assess Soldier neuro-cognitive processes in operational environments, as well as techniques to use them for neuro-ergonomic design. Technology development will focus on solutions to cognition, visual scanning, and platform control for mounted and dismounted operations. Approximately three experiments will be performed each year to look at ATO-developed technologies in a motion-based simulation environment.

LOGISTICS

Power for the Dismounted Soldier

This ATO matures and demonstrates technologies to provide small, lightweight, low-cost power sources. It demonstrates batteries that are half the size and twice the energy of C4ISR primary batteries (e.g., SINGARS, Advanced SINGARS Improvement Program (ASIP)); conformal rechargeable Soldier system batteries; a Soldier-mission-extending hybrid fuel cell; and a JP8-powered Soldier-portable power source for tactical battery recharging. The goals of the efforts include reduction in weight by 50 percent for Soldier power; extended mission times in Soldier and sensor applications; reduction in resupply quantity, weight and costs; and increased Soldier mobility, sustainability, survivability, and deployability by providing higher-energy sources and recharging capability.

Advanced Affordable Engine Technology

The goal of this ATO is to develop a 3,000 horsepower gas turbine engine for improved operational capability for Blackhawk, Apache, and other Future Force rotorcraft. Target goals include a 25 percent reduction in specific fuel consumption, a 65 percent increase in horsepower-to-weight ratio, a 35 percent reduction in operation and support cost, and a 20 percent improvement in design life. By the end of FY11, the goal is to complete rig testing of optimized component designs (TRL5) and demonstrate the ATO via an engine test. This demonstration provides a technology base supporting significant increases in rotorcraft range and payload capability while reducing logistical burden. Results of this ATO also provide technology base/tools for application to Future Force rotorcraft.

Mobile Power

This ATO develops and demonstrates innovative, cross-platform power technologies that extend the power spectrum, extend the battlefield mission, and enhance strategic mobility/deployability without adversely impacting logistics costs, capability, or readiness for tactical soldier, UGV, mobile, and TriGeneration applications. The Mobile Power ATO evaluates the impact of changes to the DoD approach to fuel utilization and will reconstruct traditional assumptions for development. Non-traditional power technologies will be investigated for Modular Force application. The ATO extends the power spectrum through the development of alternative prime movers such as fuel cells, Stirling, closed-cycle Brayton, and Dual Pressure turbine engines. It enhances power delivery and

reduces fuel consumption through the use of advanced materials and combustion controls; extends the battlefield mission through the use of transitional power for unmanned ground vehicles/robotics, communications, and power electronic controls; reduces logistics footprint (50 percent fuel savings/50 percent less hardware) with Tri-Generation approaches; and enhances strategic mobility/deployability without adversely impacting logistics costs, capability, or readiness.

High Performance Lightweight Track

This ATO provides two high-performance lightweight track system options for 30–40 ton class vehicles: a Segmented Band Track and a Lightweight Metallic Track. Future combat vehicles need lightweight track with acceptable maintainability, durability, and survivability. The current lightweight track ATO developed a 16.5-foot wide segmented band track for a 25-ton vehicle. Requirements growth for the proposed Ground Combat Vehicle (GCV) has caused critical demand for a higher capacity, more survivable lightweight track. Lightweight track systems are challenged by increased vehicle weights and performance requirements and require innovative materials and design improvements to meet high strength, durability, and survivability targets. This program will improve/optimize lightweight segmented track technology through utilization of “Best in Class” high-performance elastomers and designs to enhance durability and survivability. This ATO seeks to develop and refine Lightweight Metallic Track through optimized and innovative designs and materials that deliver performance, maintainability, and survivability at 30–40 tons.

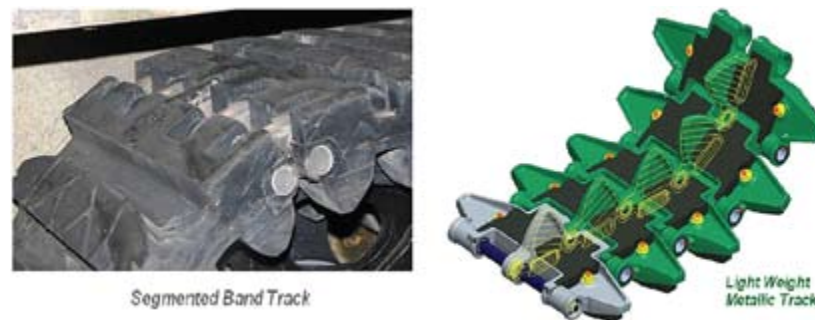


Figure 13: High-Performance, Lightweight Track

BASIC RESEARCH

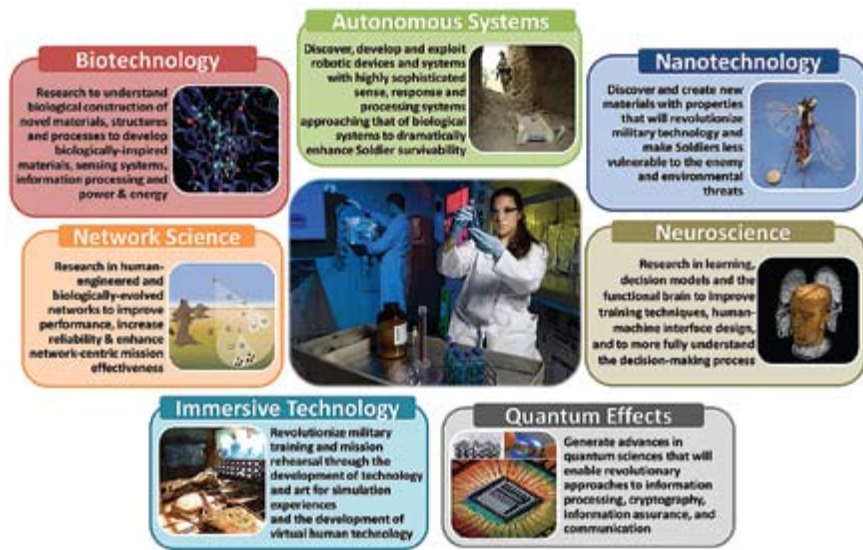


Figure 14 : Basic Research Investments

Basic research investments are a critical hedge in acquiring new knowledge in areas that hold great promise in advancing new and technically challenging Army capabilities and concepts to enable revolutionary advances and paradigm-shifting future operational capabilities. Areas of emerging interest and focus in basic research are autonomous systems, biotechnology, immersive technology, nanotechnology, network science, neuroscience, and quantum effects. Investment in basic research within the Army provides insurance against an uncertain future and guards against technological surprise. And if we are successful, these investments will make it possible to conduct ever-more complex military operations, with greater speed and precision, to devastate any adversary on any battlefield. The following is a brief summary of the areas of investment, the synergy among them, and some of the capabilities they may provide.

1 Autonomous Systems—Extending the operational effectiveness of Soldiers through robotic systems

A major military objective is to totally frustrate and defeat our adversaries across a wide spectrum of conflicts while dramatically increasing the survivability of our Soldiers by keeping them out of harm's way. Autonomous systems of extraordinary capability can fulfill this objective; however, they must be completely safe and secure while operating in highly complex operational environments. Achieving such levels of capability will require significant investments in highly sophisticated sense, response, and processing systems approaching that of biological systems; major advances in artificial intelligence; the development of intelligent agents approaching human performance levels; and advances in machine learning, swarming, and actuation and control.

2 Biotechnology—Leveraging four billion years of evolution

The increasing importance and demands for wide-area persistent surveillance create significant challenges for sensor systems, real-time processing of vast amounts of data, the real-time interpretation of information for decision-making, and power and energy requirements to support such demanding systems. Through four billion years of evolution, biological systems have engineered solutions to some of these challenges. We seek to leverage research in these areas for improving the performance of our Soldiers. Major investments in this area through reverse engineering will lead to totally new sensing systems, new ways for the rapid processing of data into information, the development of novel sense and response systems, and biologically inspired power and energy solutions.

3 Immersive Technology—The path to virtual reality training

The evolving threat environment continues to put increasing demands on the diversity and effectiveness of Soldier skills. To meet these demands, superior training tools and methods are needed. Virtual worlds can provide this capability; however, we are currently at primitive stages in their realization. With advances in computational processing and steady progress in understanding the brain's "software" comes the possibility of creating highly realistic virtual training environments inhabited by humanlike avatars. Such environments will provide a paradigm shift in the way we provide training, while achieving low-cost, safe, low-environmental impact, highly variable simulation environments for the future training of our Soldiers.

4 Nanotechnology—Dramatically changing our ability to manufacture new material by design

The last century was dominated by advances in the physical sciences through the discovery of the atom, its structure and the laws that govern its behavior. This century will be dominated by the complex world of biology and nanoscience whose mysteries will be unraveled by our understanding of systems of atoms and molecules. Nanotechnology is the manipulation of matter on a near-atomic scale to produce new structures, materials, and devices. Nanotechnology research makes it possible to explore the emerging biotech field and dramatically change our capability in creating new materials by design. This technology has the ability to transform many industries in discovering and creating new materials with properties that will revolutionize military technology and make Soldiers less vulnerable to the enemy and to environmental threats. Research in nanoscale technologies is growing rapidly worldwide. By 2015, the National Science Foundation estimates that nanotechnology will have a one trillion dollar impact on the global economy and employ two million workers, one million of whom may be in the United States.

5 Network Science—Managing complex military operations with greater speed and precision

Networks tie together the following: highly distributed sensor systems for reconnaissance and surveillance, information for decision-making, Soldiers, and the execution of fast distributed precision fires. Better-functioning networks are essential to advancing our ability to conduct complex military operations with greater speed and precision. However, our state of knowledge of these networks is relatively primitive and, as such, significantly impairs our ability to fully realize the potential that networks can provide on current and future battlefields. A new multidisciplinary approach is being implemented that combines communications, information, and the social/human component of networks, and that changes the way we address the challenges associated with optimizing the use of networks. Advances in network science will allow us to predict and optimize network performance before we build them through the creation of wholly new design tools.

6 Neuroscience—Understanding how the human brain works

Fundamental to the conduct of military operations is superior Soldier performance. Understanding how the human brain works, i.e., determining the brain's "software," is key to developing these capabilities. When embedded in a wide range of military platforms, this "software" will provide superior training methods and human system interfaces that will be tuned to an individual's characteristics, thereby resulting in superior Soldier performance. Research in this area will also dramatically advance our ability to prevent and treat those suffering from various types of battlefield brain injury.

7 Quantum Effects—Overcoming the limitations of Moore's Law

Increasing demands for information to support rapid and effective decision-making on the battlefield require advanced sensor systems to collect relevant data, as well as the means for processing it into actionable forms. Major advancements in processing power are required to cope with the demand to process ever-larger amounts of data. Investments in this area will exploit the massive parallelism of the quantum world to create computers that will dwarf the capabilities of the most powerful computers today, making them look like pocket calculators. The development of such computational systems will enable the embedding of high-performance computing in all military platforms, including the Soldier's uniform.

S&T ROLE IN FORMAL ACQUISITION MILESTONES

The Army S&T community role in acquisition involves not only technology development and transition but also formal participation in milestone decisions for acquisition programs of record. As the component S&T executive, the Deputy Assistant Secretary of the Army (DASA) for Research and Technology (R&T) is responsible for conducting technology readiness assessments (TRAs) at Milestone B and C decision points for major defense acquisition programs (MDAPs). This assessment has become even more important with recent statutory requirements for the Milestone Decision Authority (MDA) to certify to Congress that the technologies of an MDAP have been demonstrated to be at least at Technology Readiness Level (TRL) 6 in a relevant environment prior to making a Milestone B decision. The TRA serves as the gauge of this readiness for the MDA's certification at both Army and Office of the Secretary of Defense levels. The TRA process is a collaborative effort carried out among the program office, the S&T community, and (for acquisition category [ACAT] 1D programs) the Office of the Undersecretary of Defense (USD) Acquisition Technology & Logistics (AT&L).

SUMMARY

Army research investments are targeted in areas fundamental to realizing superior land warfighting capabilities and discovering new knowledge from research in areas highly relevant to the Army mission. These areas include research in network science to better understand, predict performance, and design future networks; neuroscience to better understand how the brain works so that we might improve human-machine interfaces and Soldier performance; new materials science to better protect our Soldiers and equipment; immersive virtual systems to improve our training capability; and biotechnology/nanotechnology autonomous systems.

Army S&T has made significant progress establishing persistent night surveillance of large areas for real-time situational awareness and forensic backtracking of suspect vehicles and personnel. Army S&T facilitated the rapid transition of technology solutions to both OIF and OEF, including protective armors for the MRAP Expedient Armor Program and IED-detection devices such as the Husky-mounted ground penetrating radar. We conducted nine independent readiness reviews to assess technology maturity of systems transitioning through acquisition milestones. We have advanced the computational understanding of the battlefield

through the development of practical, intelligent, and operationally relevant software tools aiding analysis and interpretation of battlefield intelligence. We are key participants in an advanced Automotive Battery Initiative with over two billion dollars committed to dual-use battery manufacturing through the Department of Energy. We built the world's first precise, flexible, fiber-optic tool for CO2 laser surgery using flexible optoelectronic fiber based technology now performing over 175 life-saving weekly procedures. The Joint High Power Solid-State Laser (JHPSSL) program demonstrated a laser with 105 kilowatts (kW) output—the highest output recorded for a solid state laser, and a power threshold traditionally viewed as a proof of principle for “weapons grade” capable high-energy lasers. The Army Science Board completed a Quick Reaction study providing independent recommendations for survivable manned ground vehicle designs to inform Army leadership on alternatives for the cancelled Future Combat Systems manned ground vehicle. The Army Science Board completed a Soldier suicide mitigation study to develop and propose suicide mitigation actions and policy changes to reduce suicide rates among Soldiers.

In the coming years, the Army's Science and Technology (S&T) community plans to continue pursuing basic and applied research and technology development in areas of force protection, C4ISR, medical, lethality, Soldiers, logistics, rotorcraft, unmanned systems, and advanced simulation that will potentially allow the Army to maintain superior land warfighting capabilities. This strategy also retains flexibility to develop solutions that are responsive to changing warfighter needs. The technological sophistication required for 21st century operations constantly increases with the broadening nature of threats and the greater availability of technology to our adversaries. The goal of the Army's ongoing research is to provide high-payoff—the type that the private sector is not likely to sustain over the long haul because there is no linkage to acquisition programs at the outset of research. This high-risk research is essential if we are to achieve the technological breakthroughs that result in dramatic performance improvements in the Army's systems. One such breakthrough in guidance and control technology led to the Excalibur precision artillery munition that has virtually eliminated collateral damage to noncombatants. Today's Current Force has significant technology-enabled advantages as a result of the Army's past investments in S&T, particularly in night vision, precision munitions, and individual Soldier protection. Scientists and engineers continue to expand the limits of our understanding to provide technology to our Soldiers in the systems they use to achieve transformational capabilities required for decisive victories.

Appendices

Army Combat Organizations

Glossary of Terms

Systems by Contractors

Contractors by State

Points of Contact

Army Combat Organizations

Army organizations are inherently built around people and the tasks they must perform. Major combat organizations are composed of smaller forces, as shown here.

Squad

- Leader is a sergeant
- Smallest unit in Army organization
- Size varies depending on type: Infantry (9 Soldiers), Armor (4 Soldiers), Engineer (10 Soldiers)
- Three or four squads make up a platoon

Platoon

- Leader is a lieutenant
- Size varies: Infantry (40 Soldiers), Armor (4 tanks, 16 Soldiers)
- Three or four platoons make up a company

Company

- Leader is a captain
- Usually up to 220 Soldiers
- Artillery unit of this size is called a battery
- Armored Cavalry or Air Cavalry unit is called a troop
- Basic tactical element of the maneuver battalion or cavalry squadron
- Normally five companies make up a battalion

Battalion

- Leader is a lieutenant colonel
- Tactically and administratively self-sufficient
- Armored Cavalry and Air Cavalry equivalents are called squadrons
- Two or more combat battalions make up a brigade

Brigade

- Leader is a colonel
- May be employed on independent or semi-independent operations
- Combat, combat support, or service support elements may be attached to perform specific missions
- Normally three combat brigades are in a division

Division

- Leader is a major general
- Fully structured division has own brigade-size artillery, aviation, engineer, combat support, and service elements
- Two or more divisions make up a corps commanded by a lieutenant general

To better confront current and future threats, the Army is transforming its force structure into Brigade Combat Teams (BCTs). The goal is to provide more flexible and self contained forces with the capability of rapid deployment and the ability to engage in the full spectrum of warfare without sacrificing lethality and staying power on the battlefield. These BCTs will be organized as Infantry (IBCTs), Heavy (HBCTs) and Stryker (SBCTs).

Glossary of Terms

Acquisition Categories (ACAT)

ACAT I programs are Milestone Decision Authority Programs (MDAPs [see also Major Defense Acquisition Program]) or programs designated ACAT I by the Milestone Decision Authority (MDA [see also Milestone Decision Authority]).

Dollar value: estimated by the Under Secretary of Defense (Acquisition and Technology) (USD [A&T]) to require an eventual total expenditure for research, development, test and evaluation (RDT&E) of more than \$365 million in fiscal year (FY) 2000 constant dollars or, for procurement, of more than \$2.190 billion in FY 2000 constant dollars. ACAT I programs have two subcategories:

1. **ACAT ID**, for which the MDA is USD (A&T). The “D” refers to the Defense Acquisition Board (DAB), which advises the USD (A&T) at major decision points.
2. **ACAT IC**, for which the MDA is the DoD Component Head or, if delegated, the DoD Component Acquisition Executive (CAE). The “C” refers to Component. The USD (A&T) designates programs as ACAT ID or ACAT IC.

ACAT IA programs are MAISs (see also Major Automated Information System (MAIS) Acquisition Program), or programs designated by the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD [C3I]) to be ACAT IA.

Estimated to exceed: \$32 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, and deployment, and incurred in any single fiscal year; or \$126 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, and deployment, and incurred from the beginning of the Materiel Solution Analysis Phase through deployment at all sites; or \$378 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the

AIS definition, design, development, deployment, operations and maintenance, and incurred from the beginning of the Materiel Solution Analysis Phase through sustainment for the estimated useful life of the system.

ACAT IA programs have two subcategories:

1. **ACAT IAM**, for which the MDA is the Chief Information Officer (CIO) of the DoD, the ASD (C3I). The “M” refers to Major Automated Information System Review Council (MAISRC). (Change 4, 5000.2-R)
2. **ACAT IAC**, for which the DoD CIO has delegated milestone decision authority to the CAE or Component CIO. The “C” refers to Component.

ACAT II programs are defined as those acquisition programs that do not meet the criteria for an ACAT I program, but do meet the criteria for a major system, or are programs designated ACAT II by the MDA.

ACAT III programs are defined as those acquisition programs that do not meet the criteria for an ACAT I, an ACAT IA, or an ACAT II. The MDA is designated by the CAE and shall be at the lowest appropriate level. This category includes less-than-major AISs.

Acquisition Phase

All the tasks and activities needed to bring a program to the next major milestone occur during an acquisition phase. Phases provide 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:

Technology Development 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 to demonstrate critical technology elements on prototypes. Technology Development is a continuous technology 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 user requirements. Entrance into

this phase depends on the completion of the Analysis of Alternatives (AOA), a proposed materiel solution, and full funding for planned Technology Development Phase activity.

Engineering and Manufacturing Development (EMD) Phase

(Statutes applicable to the Systems Development and Demonstration phase shall be applicable to the EMD phase.)

The purpose of the EMD phase is to develop a system or an increment of capability; complete full system integration (technology risk reduction occurs during Technology Development); develop an affordable and executable manufacturing process; ensure operational supportability with particular attention to minimizing the logistics footprint; implement human systems integration (HSI); 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 (TEMP) 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 and Deployment Phase

The purpose of the Production and Deployment 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 (for MDAPs and major systems), into production or procurement (for non-major systems that do not require LRIP) or into limited deployment in support of operational testing for MAIS programs or software-intensive systems with no production components. The tables in Enclosure 4 identify the statutory and regulatory requirements that shall be met at Milestone C. Entrance into this phase depends on the following criteria: acceptable performance in developmental test and evaluation and operational assessment (OSD OT&E oversight programs); mature software capability; no significant manufacturing risks; manufacturing processes under control

(if Milestone C is full-rate production); an approved Initial Capabilities Document (ICD) (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 full-rate production.

Operations and Support Phase

The purpose of the Operations and Support 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 (LLSP). Operations and Support has two major efforts: life-cycle sustainment and disposal. Entrance into the Operations and Support Phase depends on meeting the following criteria: an approved CPD; an approved LCSP; and a successful Full-Rate Production (FRP) Decision.

Acquisition Program

A directed, funded effort designed to provide a new, improved or continuing weapons system or AIS capability in response to a validated operational need. Acquisition programs are divided into different categories that are established to facilitate decentralized decision-making, and execution and compliance with statutory requirements.

Advanced Concept Technology Demonstrations (ACTDs)

ACTDs are a means of demonstrating the use of emerging or mature technology to address critical military needs. ACTDs themselves are not acquisition programs, although they are designed to provide a residual, usable capability upon completion. If the user determines that additional units are needed beyond the residual capability and that these units can be funded, the additional buys shall constitute an acquisition program with an acquisition category generally commensurate with the dollar value and risk of the additional buy.

Automated Information System (AIS)

A combination of computer hardware and software, data, or telecommunications, that performs functions such as collecting, processing, transmitting, and displaying information. Excluded are computer resources, both hardware and software, that are physically part of, dedicated to, or essential in real time to the mission performance of weapon systems.

Commercial and Non-Developmental Items

Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. For ACAT I and IA programs, while few commercial items meet requirements at a system level, numerous commercial components, processes, and practices have application to DoD systems.

Demilitarization and Disposal

At the end of its useful life, a system must be demilitarized and disposed of. During demilitarization and disposal, the program manager shall ensure materiel determined to require demilitarization is controlled and shall ensure 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 shall identify potential operational and technological capabilities and limitations of the alternative concepts and design options being pursued; support the identification and description of design technical risks; and provide data and analysis in support of the decision to certify the system ready for operational test and evaluation.

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 collocated at the location of the lead component's program office, to the maximum extent practicable.

Live Fire Test and Evaluation (LFT&E)

LFT&E must be conducted on a covered system, major munition program, missile program, or product improvement to a covered system, major munition program, or missile program before it can proceed beyond low-rate initial production. 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 that is an ACAT I or II program. Depending upon its intended use, a commercial or non-developmental item may be a covered system, or a part of a covered system. (Change 4, 5000.2-R) Systems requiring LFT&E may not proceed beyond low-rate initial production 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 this activity 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 full-rate production upon successful completion of operational testing.

Major Automated Information System (MAIS) Acquisition Program

An AIS acquisition program that is (1) designated by ASD (C3I) as a MAIS, or (2) estimated to require program costs in any single year in excess of \$32 million in FY 2000 constant dollars, total program costs in excess of \$126 million in FY 2000 constant dollars, or total life-cycle costs in excess of \$378 million in FY 2000 constant dollars. MAISs do not include highly sensitive classified programs.

Major Defense Acquisition Program (MDAP)

An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is: (1) designated by the USD (A&T) as an MDAP, or (2) estimated by the USD (A&T) to require an eventual total expenditure for research, development, test and evaluation of more than \$365 million in FY 2000 constant dollars or, for procurement, of more than \$2.190 billion in FY 2000 constant dollars.

Major Milestone

A major milestone is the decision point that separates the phases of an acquisition program. MDAP milestones include, for example, the decisions to authorize entry into the engineering and manufacturing development phase or full rate production. MAIS milestones may include, for example, the decision to begin program definition and risk reduction.

Major Systems

Dollar value: estimated by the DoD Component Head to require an eventual total expenditure for RDT&E of more than \$140 million in FY 2000 constant dollars, or for procurement of more than \$660 million in FY 2000 constant dollars.

Materiel Solution Analysis Phase

The purpose of this phase is to assess potential materiel solutions and to satisfy the phase-specific entrance criteria for the next program milestone designated by the MDA. Entrance into this phase depends upon an approved ICD resulting from the analysis of current mission performance and an analysis of potential concepts across the DoD components, international systems from allies, and cooperative opportunities.

Milestone Decision Authority (MDA)

The individual designated in accordance with criteria established by the USD (A&T), or by the ASD (C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase.

Modifications

Any modification that is of sufficient cost and complexity that it could itself qualify as an ACAT I or ACAT IA program shall be considered for management purposes as a separate acquisition effort. Modifications that do not cross the ACAT I or IA threshold shall be considered part of the program being modified, unless the program is no longer in production. In that case, the modification shall be considered a separate acquisition effort. (Added from 5000.2-R)

Operational 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 of them in the most life-cycle cost-effective manner. A follow-on operational testing program that assesses performance and quality, compatibility, and interoperability, and identifies deficiencies shall be conducted, as appropriate.

This activity shall also include the execution of operational support plans, to include the transition from contractor to organic support, if appropriate. (Added from 5000.2-R)

Operational Test and Evaluation (OT&E)

OT&E shall be structured to determine the operational effectiveness and suitability of a system under realistic conditions (e.g., combat) and to determine if the operational performance requirements have been satisfied. The following procedures are mandatory: threat or threat representative forces, targets, and threat countermeasures, validated in coordination with Defense Intelligence Agency (DIA), shall be used; typical users shall operate and maintain the system or item under conditions simulating combat stress and peacetime conditions; the independent operational test activities shall use production or production representative articles for the dedicated phase of OT&E that supports the full-rate production decision, or for ACAT IA or other acquisition programs, the deployment decision; and the use of modeling and simulation shall be considered during test planning. There are more mandatory procedures (nine total) in 5000.2-R.

For additional information on acquisition terms, or terms not defined, please refer to AR 70-1, Army Acquisition Policy, available on the Internet at http://www.army.mil/usapa/epubs/pdf/r70_1.pdf; or DA PAM 70-3, Army Acquisition Procedures, available on the Internet at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf>.

Systems by Contractors

A/S Hydrema

Countermine

AAI Corp.

Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS)

AAI Corp. (Textron Systems)

Shadow Tactical Unmanned Aerial System (TUAS)

AAR Mobility Systems

Mobile Maintenance Equipment Systems (MMES)

Aberdeen Test Center

Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)

Acambis plc

Chemical Biological Medical Systems—Prophylaxis

Accenture

General Fund Enterprise Business Systems (GFEBS)
Global Command and Control System—Army (GCCS-A)

Acme Electric

Javelin

Acme Radiator

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Action Mfg

2.75 Inch Rocket Systems (Hydra)

ADSI

High Mobility Engineer Excavator (HMEE) I and III

Advanced Systems Technology

One Semi-Automated Forces (OneSAF)

AEPCO

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
Longbow Apache (AH-64D) (LBA)

Aerial Machine and Tool Corp.

Air Warrior (AW)

Aerovironment, Inc.

Raven Small Unmanned Aircraft System (SUAS)

Aerojet

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)
Javelin
Joint Air-to-Ground Missile (JAGM)
PATRIOT Advanced Capability—Three (PAC-3)

Aerojet General

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Agilent Technologies, Inc.

Calibration Sets Equipment (CALSETS)

Airborne Systems North America

Joint Precision Airdrop System (JPADS)

All American Racers, Inc.

Raven Small Unmanned Aircraft System (SUAS)

Alliant Techsystems

2.75 Inch Rocket Systems (Hydra)
Artillery Ammunition
Counter Defilade Target Engagement (CDTE)—XM25
Excalibur (XM982)
Future Tank Main Gun Ammunition (FTMGA)
Hellfire Family of Missiles
Joint Air-to-Ground Missile (JAGM)
Medium Caliber Ammunition (MCA)
Precision Guidance Kit (PGK)
Small Caliber Ammunition
Spider
Tank Ammunition (TA)

Allison Transmission

Abrams Tank Upgrade (M1A1)
Family of Medium Tactical Vehicles (FMTV)
Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT Extended Service Program (ESP)
Palletized Load System (PLS) and PLS Extended Service Program (ESP)

AM General

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles
Improved Ribbon Bridge (IRB)

American Eurocopter

Light Utility Helicopter (LUH)/UH-72A
Lakota

American Ordnance

Artillery Ammunition
Medium Caliber Ammunition (MCA)
Spider

American Science & Engineering, Inc.

Non-Intrusive Inspection Systems (NIIS)

AMT

Mortar Systems

AMTEC Corp.

Medium Caliber Ammunition (MCA)

Anniston Army Depot

Abrams Tank Upgrade (M1A1)

ANP Technologies

Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM)

Apptricity Corp.

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

ArgonST Radix

Guardrail Common Sensor (GR/CS)

ArmaceL Armor

Interceptor Body Armor

Armaments R&D Ctr

Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)

ArmorWorks

Interceptor Body Armor

Athena

Shadow Tactical Unmanned Aerial System (TUAS)

Alliant Techsystems, Inc.

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Atlantic Inertial Units

Excalibur (XM982)

Austal USA

Joint High Speed Vessel (JHSV)

Aviation and Missile Solutions, LLC

Longbow Apache (AH-64D) (LBA)

Avnet

Joint Air-to-Ground Missile (JAGM)

Avon Protection Systems

Joint Service General Purpose Mask (JSGPM)

Azimuth Inc.

Distributed Common Ground System—Army (DCGS-A)

B&M Painting

2.75 Inch Rocket Systems (Hydra)

BAE Systems/Holston

Spider

BAE Systems

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
 Air Warrior (AW)
 Airborne Reconnaissance Low (ARL)
 Armored Security Vehicle (ASV)
 Bradley Fighting Vehicle Systems Upgrade
 Countermine
 Heavy Loader
 High Mobility Artillery Rocket System (HIMARS)
 Interceptor Body Armor
 Joint Tactical Ground Stations (JTAGS)
 Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)
 Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)
 Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)
 Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)
 Lightweight 155mm Howitzer (LW155)
 Mine Protection Vehicle Family (MPVF)
 Mounted Soldier System
 Multiple Launch Rocket System (MLRS) M270A1
 Night Vision Thermal Systems—Thermal Weapon Sight (TWS)
 Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)
 Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles
 Warfighter Information Network—Tactical (WIN-T) Increment 3

BAE Systems C4

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

BAE Systems Bofors Defense (teamed with Raytheon)

Excalibur (XM982)

BAE Systems Land & Armaments

Joint Light Tactical Vehicle (JLTV)

BAE Systems Land & Armaments, Ground Systems Division

Mine Resistant Ambush Protected Vehicles (MRAP)

BAE-TVS

Mine Resistant Ambush Protected Vehicles (MRAP)

Beacon Industries

High Mobility Artillery Rocket System (HIMARS)

Bell Helicopter Textron

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
 Kiowa Warrior

Berg Companies, Inc.

Force Provider (FP)

Binary Group

General Fund Enterprise Business Systems (GFEBS)

Boeing

CH-47 Chinook

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1
 Joint Air-to-Ground Missile (JAGM)
 Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)
 Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)
 Longbow Apache (AH-64D) (LBA)
 PATRIOT Advanced Capability—Three (PAC-3)

Booz Allen Hamilton

Distributed Common Ground System—Army (DCGS-A)
 Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
 Global Command and Control System—Army (GCCS-A)
 Joint Land Component Constructive Training Capability (JLCCTC)
 Secure Mobile Anti-Jam Reliable Tactical—Terminal (SMART-T)

Breeze

High Mobility Artillery Rocket System (HIMARS)

Bren-Tronics

Raven Small Unmanned Aircraft System (SUAS)

CACI

Advanced Field Artillery Tactical Data System (AFATDS)
 Airborne Reconnaissance Low (ARL)
 Army Key Management System (AKMS)
 Battle Command Sustainment Support System (BCS3)
 Biometric Enabling Capability (BEC)

Combat Service Support Communications (CSS Comms)
 Common Hardware Systems (CHS)
 Distributed Common Ground System—Army (DCGS-A)
 Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
 Force XXI Battle Command Brigade and Below (FBCB2)
 Joint Battle Command—Platform (JBC-P)
 Joint Personnel Identification Version 2 (JPIV2)
 Single Channel Ground and Airborne Radio System (SINGARS)
 Tactical Battle Command (TBC)/Maneuver Control System (MCS)

CACI Technologies

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)—Stryker Sensor Suite

CAE USA

One Semi-Automated Forces (OneSAF)

Cangene, Corp.

Chemical Biological Medical Systems—Prophylaxis

Capgemini

Global Combat Support System—Army (GCSS-Army)

Carleton Technologies Inc.

Air Warrior (AW)
 Mounted Soldier System

CAS, Inc.

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
 Sentinel

Casteel Manufacturing

Line Haul Tractor

Caterpillar

Family of Medium Tactical Vehicles (FMTV)
 Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT Extended Service Program (ESP)

Caterpillar C-15

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

Caterpillar Defense and Federal Products

Heavy Loader

CECOM Software Engineering Center

Tactical Battle Command (TBC)/Maneuver Control System (MCS)

C.E. Niehoff & Co

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

CEP Inc.

Air Warrior (AW)

Ceradyne, Inc.

Interceptor Body Armor

Charleston Marine Containers

Force Provider (FP)

Chenega

Armored Security Vehicle (ASV)

CMC Electronics

Joint Air-to-Ground Missile (JAGM)

CMI

Shadow Tactical Unmanned Aerial System (TUAS)

Colt's Manufacturing Co.

Small Arms—Individual Weapons

Computer Sciences Corp. (CSC)

Advanced Field Artillery Tactical Data System (AFATDS)
 Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
 Defense Enterprise Wideband SATCOM System (DEWSS)
 Global Combat Support System—Army (GCSS-Army)
 Installation Protection Program (IPP)
 Medical Simulation Training Center (MSTC)

COMTECH Mobile Datacom

Movement Tracking System (MTS)

Conax

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Critical Solutions International, Inc.

Mine Protection Vehicle Family (MPVF)

CUBIC Defense Systems

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

Cummins Mid-South LLC

Armored Security Vehicle (ASV)

Cummins Power Generation

Tactical Electric Power (TEP)

CSS

Army Key Management System (AKMS)

Curtiss-Wright

Bradley Fighting Vehicle Systems Upgrade

CTT

Shadow Tactical Unmanned Aerial System (TUAS)

Daimler Truck, North America/ Freightliner

Line Haul Tractor

David H. Pollock Consultants

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)

Dedicated Computing

Close Combat Tactical Trainer (CCTT)

Defiance

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Dell Computer Corporation

Battle Command Sustainment Support System (BCS3)

Dell Federal Systems

Medical Communications for Combat Casualty Care (MC4)

Demmer

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Dewey Electronics

Tactical Electric Power (TEP)

Detroit Diesel

Line Haul Tractor
Palletized Load System (PLS) and PLS
Extended Service Program (ESP)

**DISA Satellite Transmission Services-
Global NETCOM**

Combat Service Support Communications
(CSS Comms)

DMD

Integrated Air and Missile Defense (IAMD)

DRS-ESI

Improved Environmental Control Units
(IECU)

DRS Fermont

Tactical Electric Power (TEP)

DRS Mobile Environmental

Close Combat Tactical Trainer (CCTT)

DRS Optronics, Inc.

Kiowa Warrior
Night Vision Thermal Systems—Thermal
Weapon Sight (TWS)

DRS-TEM

Integrated Family of Test Equipment (IFTE)

DRS Sustainment Systems, Inc.

Armored Knight
Modular Fuel System (MFS)

DRS Tactical Systems

Armored Knight

DRS Technologies

Bradley Fighting Vehicle Systems Upgrade
Force XXI Battle Command Brigade and
Below (FBCB2)
Javelin
Joint Service Transportable
Decontamination System (JSTDS)—
Small Scale (SS)

DSE (Balimoy) Corp.

Medium Caliber Ammunition (MCA)

DynCorp

Longbow Apache (AH-64D) (LBA)

DynPort Vaccine

Chemical Biological Medical Systems—
Prophylaxis

Dynetics, Inc.

Calibration Sets Equipment (CALSETS)

E&TS Ktrs

Joint Land Attack Cruise Missile Defense
Elevated Netted Sensor System (JLENS)

EADS

Joint Tactical Radio System
Multifunctional Information Distribution
System (JTRS MIDS)

EADS North America

Light Utility Helicopter (LUH)/UH-72A
Lakota

Eaton-Vickers

High Mobility Artillery Rocket System
(HIMARS)

Eaton Aeroquip

High Mobility Artillery Rocket System
(HIMARS)

ECBC

Weapons of Mass Destruction Elimination

ECC International

Javelin

E.D. Etnyre and Co.

Modular Fuel System (MFS)

EFW

High Mobility Artillery Rocket System
(HIMARS)

EG&G

Force Protection Systems

Elbit Systems of America

Bradley Fighting Vehicle Systems Upgrade
Kiowa Warrior
Mortar Systems

Electronic Consulting Services, Inc.

Close Combat Tactical Trainer (CCTT)

Emergent BioSolutions

Chemical Biological Medical Systems—
Prophylaxis

Engility

Nett Warrior (NW)

**Engineering Research and
Development Command**

Transportation Coordinators' Automated
Information for Movement System II
(TC-AIMS II)

**Engineering Solutions and Products
(ESP)**

Common Hardware Systems (CHS)
Force XXI Battle Command Brigade and
Below (FBCB2)
Global Command and Control System—
Army (GCCS-A)
Warfighter Information Network—Tactical
(WIN-T) Increment 1

EPS Corp.

Secure Mobile Anti-Jam Reliable Tactical—
Terminal (SMART-T)

ESA Mfg.

High Mobility Multi-Purpose Wheeled
Vehicle (HMMWV) Family of Vehicles

Esterline Defense Technologies

Artillery Ammunition

EuroMIDS

Joint Tactical Radio System
Multifunctional Information Distribution
System (JTRS MIDS)

Fabrique National Manufacturing, LLC

Small Arms—Crew Served Weapons

FASCAN International

Countermine

FBM Babcock Marine

Improved Ribbon Bridge (IRB)

Fidelity Technologies Corp.

Tactical Electric Power (TEP)

Fluke Corp.

Calibration Sets Equipment (CALSETS)

Force Protection Industries, Inc.

Mine Protection Vehicle Family (MPVF)

Mine Resistant Ambush Protected Vehicles (MRAP)

Future Research Corp.

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

General Atomics, Aeronautical Systems Inc.

Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS)

General Dynamics

2.75 Inch Rocket Systems (Hydra)

Advanced Field Artillery Tactical Data System (AFATDS)

Counter-Rocket, Artillery and Mortar (C-RAM)

Distributed Common Ground System—Army (DCGS-A)

Forward Area Air Defense Command and Control (FAAD C2)

Global Command and Control System—Army (GCCS-A)

Joint Air-to-Ground Missile (JAGM)

Joint Land Component Constructive Training Capability (JLCCTC)

Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)

Medical Communications for Combat Casualty Care (MC4)

Nett Warrior (NW)

Prophet

Shadow Tactical Unmanned Aerial System (TUAS)

Small Caliber Ammunition

Stryker Family of Vehicles

Tactical Battle Command (TBC)/Maneuver Control System (MCS)

Warfighter Information Network—Tactical (WIN-T) Increment 2

Warfighter Information Network—Tactical (WIN-T) Increment 3

General Dynamics Advanced Information Systems

Joint High Speed Vessel (JHSV)

General Dynamics Armament and Technical Products

2.75 Inch Rocket Systems (Hydra)

Joint Air-to-Ground Missile (JAGM)

Joint Biological Point Detection System (JBPDS)

XM806—Lightweight .50 cal Machine Gun

Small Arms—Crew Served Weapons

General Dynamics Assembly Operations (GDAO)

Stryker Family of Vehicles

General Dynamics C4 Systems, Inc.

Air Warrior (AW)

Command Post Systems and Integration (CPS&I)

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)

Mortar Systems

Warfighter Information Network—Tactical (WIN-T) Increment 1

General Dynamics European Land Systems—Germany

Improved Ribbon Bridge (IRB)

General Dynamics Land Systems

Abrams Tank Upgrade (M1A1)

Mounted Soldier System

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)—Stryker Sensor Suite

Stryker Family of Vehicles

General Dynamics Land Systems, Canada

Mine Resistant Ambush Protected Vehicles (MRAP)

Stryker Family of Vehicles

General Dynamics Ordnance and Tactical Systems

2.75 Inch Rocket Systems (Hydra)

Artillery Ammunition

Excalibur (XM982)

Future Tank Main Gun Ammunition (FTMGA)

Javelin

Joint Air-to-Ground Missile (JAGM)

Medium Caliber Ammunition (MCA)

Small Caliber Ammunition

Tank Ammunition (TA)

General Dynamics Ordnance and Tactical Systems—Scranton Operations

Artillery Ammunition

General Dynamics SATCOM Technologies

Warfighter Information Network—Tactical (WIN-T) Increment 1

General Electric

Black Hawk/UH-60

General Tactical Vehicle

Joint Light Tactical Vehicle (JLTV)

Gentex Corp.

Air Warrior (AW)

Georgia Tech Applied Research Corp

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)**GEP**

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Gibson and Barnes

Air Warrior (AW)

Goodrich

CH-47 Chinook

Global Defense Engineering

Force Provider (FP)

Group Home Foundation, Inc.

Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3)

GTP

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

GTSI

Global Command and Control System—Army (GCCS-A)

Gulfstream

Fixed Wing

Heckler and Koch GmbH

Counter Defilade Target Engagement (CDTE)—XM25

Heckler and Koch Defense Inc.

Small Arms—Individual Weapons

Hamilton Sundstrand

Black Hawk/UH-60

Harris Corp.

Defense Enterprise Wideband SATCOM System (DEWSS)

High Mobility Artillery Rocket System (HIMARS)

Multiple Launch Rocket System (MLRS) M270A1

Warfighter Information Network—Tactical (WIN-T) Increment 2

Warfighter Information Network—Tactical (WIN-T) Increment 3

Helicopter Support, Inc.

Light Utility Helicopter (LUH)/UH-72A Lakota

Hellfire LLC

Hellfire Family of Missiles

Honeywell

Abrams Tank Upgrade (M1A1)

Armored Knight

CH-47 Chinook

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

Kiowa Warrior

Longbow Apache (AH-64D) (LBA)

Howmet Castings

Lightweight 155mm Howitzer (LW155)

Hunter Defense Technologies

Improved Environmental Control Units (IECU)

Hunter Manufacturing

Force Provider (FP)

IBM

Distributed Learning System (DLS)

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

ICx Technologies

Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DR CKO)

Idaho Technologies

Chemical Biological Medical Systems—Diagnostics

iLuMinA Solutions

General Fund Enterprise Business Systems (GFEBs)

Independent Pipe Products

Javelin

Indigo System Corp.

Raven Small Unmanned Aircraft System (SUAS)

Indra

Joint Tactical Radio System

Multifunctional Information Distribution System (JTRS MIDS)

Intuitive Research and Technology

Medium Extended Air Defense System (MEADS)

Intercoastal Electronics

Improved Target Acquisition System (ITAS)

iRobot

Early Infantry Brigade Combat Team

(E-IBCT) Capabilities IBCT Increment 1

ITT

Defense Enterprise Wideband SATCOM System (DEWSS)

Helmet Mounted Night Vision Devices (HMNVd)

Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

Single Channel Ground and Airborne Radio System (SINCGARS)

ITT—CAS, Inc.

Forward Area Air Defense Command and Control (FAAD C2)

JANUS Research

Secure Mobile Anti-Jam Reliable Tactical—Terminal (SMART-T)

Javelin Joint Venture

Javelin

JCB Inc.

High Mobility Engineer Excavator (HMEE) I and III

JLG Industries, Inc.

All Terrain Lifter Army System (ATLAS)

Johns Hopkins University Applied Physics Laboratory

Defense Enterprise Wideband SATCOM System (DEWSS)

Medical Communications for Combat Casualty Care (MC4)

Joint Systems Manufacturing Center (JSMC)

Stryker Family of Vehicles

Juniper Networks

Combat Service Support Communications (CSS Comms)

Kaegan Corporation

Close Combat Tactical Trainer (CCTT)

Kaiser Aluminum

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Kalmar Rough Terrain Center (KRTC) LLC

Rough Terrain Container Handler (RTCH)

Kaydon

High Mobility Artillery Rocket System (HIMARS)

KDH Defense Systems

Interceptor Body Armor

Kidde Dual Spectrum

Stryker Family of Vehicles

King Aerospace

Fixed Wing

Kipper Tool Company

Mobile Maintenance Equipment Systems (MMES)

Klune

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Kongsberg Defense & Aerospace

Common Remotely Operated Weapon Station (CROWS)

L-3 Communications

Aviation Combined Arms Tactical Trainer (AVCATT)

Bradley Fighting Vehicle Systems Upgrade

Force Protection Systems

Gray Eagle Extended Range Multipurpose (ERMP) Unmanned Aircraft System (UAS)

Guardrail Common Sensor (GR/CS)

Hellfire Family of Missiles

Medical Communications for Combat Casualty Care (MC4)

Prophet

Raven Small Unmanned Aircraft System (SUAS)

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

Shadow Tactical Unmanned Aerial System (TUAS)

Tank Ammunition (TA)

Warfighter Information Network-Tactical (WIN-T) Increment 2

Warfighter Information Network-Tactical (WIN-T) Increment 3

L-3 Communications/Brashear

Counter Defilade Target Engagement (CDTE)-XM25

L-3 Communications Electro-Optic Systems

Helmet Mounted Night Vision Devices (HMNVD)

Sniper Night Sight (SNS), AN/PVS-10

L-3 Communications Space & Navigation

High Mobility Artillery Rocket System (HIMARS)

Multiple Launch Rocket System (MLRS) M270A1

L-3 CyTerra Corp.

Countermine

L-3 Global Communications Solutions, Inc.

Combat Service Support Communications (CSS Comms)

L-3 Interstate Electronics Corp.

Precision Guidance Kit (PGK)

L-3 Services, an MPRI Company

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

L-3 Westwood

Tactical Electric Power (TEP)

Lapeer Industries Inc.

Armored Security Vehicle (ASV)

Letterkenny Army Depot

Force Provider (FP)

Lex Products Corp.

Force Provider (FP)

Lincoln Labs

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

Linquest Corp

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

Litton Advanced Systems

Airborne Reconnaissance Low (ARL)

LMI Consulting

Global Combat Support System-Army (GCSS-Army)

Lockheed Martin

Airborne Reconnaissance Low (ARL)

Battle Command Sustainment Support System (BCS3)

Close Combat Tactical Trainer (CCTT)

Distributed Common Ground System-Army (DCGS-A)

Distributed Learning System (DLS)

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

Global Command and Control System-Army (GCCS-A)

Guardrail Common Sensor (GR/CS)

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

Hellfire Family of Missiles

High Mobility Artillery Rocket System (HIMARS)

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

Javelin

Joint Air-to-Ground Missile (JAGM)

Joint Land Component Constructive Training Capability (JLCCTC)

Joint Light Tactical Vehicle (JLTV)

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)

Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

Longbow Apache (AH-64D) (LBA)

Medium Extended Air Defense System (MEADS)

Multiple Launch Rocket System (MLRS) M270A1

PATRIOT Advanced Capability-Three (PAC-3)

Tactical Battle Command (TBC)/Maneuver Control System (MCS)

Warfighter Information Network-Tactical (WIN-T) Increment 2

Warfighter Information Network-Tactical (WIN-T) Increment 3

Lockheed Martin Gyrocam Systems LLC

Countermine

Lockheed Martin Missiles and Fire Control

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

PATRIOT Advanced Capability—Three (PAC-3)

Longbow LLC

Hellfire Family of Missiles
Longbow Apache (AH-64D) (LBA)

LTI DataComm, Inc.

Combat Service Support Communications (CSS Comms)

M7 Aerospace

Fixed Wing

MacAulay-Brown, Inc.

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)

Mainstream Engineering

Improved Environmental Control Units (IECU)

Mandus Group

Mobile Maintenance Equipment Systems (MMES)

MANTECH

Force XXI Battle Command Brigade and Below (FBCB2)

Marsh Industrial

Force Provider (FP)

Marvin Engr

Joint Air-to-Ground Missile (JAGM)

MaTech

Mortar Systems

MCT Industries, Inc.

Mobile Maintenance Equipment Systems (MMES)

MEADS, Intl.

Medium Extended Air Defense System (MEADS)

Med-Eng Systems Inc.

Air Warrior (AW)

Medical Education Technologies

Medical Simulation Training Center (MSTC)

Meggitt Training

Close Combat Tactical Trainer (CCTT)

Meridian Medical Technologies

Chemical Biological Medical Systems/Transformational Medical Technologies—Therapeutics

Meritor

Family of Medium Tactical Vehicles (FMTV)
Line Haul Tractor

Michelin

Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT Extended Service Program (ESP)
Palletized Load System (PLS) and PLS Extended Service Program (ESP)

Mil-Mar Century, Inc.

Load Handling System Compatible Water Tank Rack (Hippo)

MITRE

Distributed Common Ground System—Army (DCGS-A)
Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
Joint Battle Command—Platform (JBC-P)

Modineer Co Inc.

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Moog Inc.

Hellfire Family of Missiles
Joint Air-to-Ground Missile (JAGM)
Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Mountain High Equipment and Supply Co.

Air Warrior (AW)

MPRI, an L3 Company

Distributed Learning System (DLS)
Global Combat Support System—Army (GCSS-Army)

MSA Armor and Equipment

Interceptor Body Armor

N-Link Corp

Distributed Learning System (DLS)

Naval Air Warfare Center Aircraft Division

Weapons of Mass Destruction Elimination

Navistar Defense

Mine Resistant Ambush Protected Vehicles (MRAP)

NCI Information Systems

Nett Warrior (NW)

NIITEK

Countermine

North American Controls

Stryker Family of Vehicles

Northrop Grumman

Advanced Field Artillery Tactical Data System (AFATDS)
Air/Missile Defense Planning and Control System (AMDPCS)
Battle Command Sustainment Support System (BCS3)
Command Post Systems and Integration (CPS&I)
Common Hardware Systems (CHS)
Counter-Rocket, Artillery and Mortar (C-RAM)
Defense Enterprise Wideband SATCOM System (DEWSS)
Distributed Common Ground System—Army (DCGS-A)
Force XXI Battle Command Brigade and Below (FBCB2)
Guardrail Common Sensor (GR/CS)
Integrated Air and Missile Defense (IAMD)
Integrated Family of Test Equipment (IFTE)
Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)
Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)
Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)
Longbow Apache (AH-64D) (LBA)
Movement Tracking System (MTS)

Northrop Grumman Electronic Systems

Joint Tactical Ground Stations (JTAGS)

Northrop Grumman Information Systems

Global Combat Support System—Army (GCSS-Army)

Northrop Grumman Integrated Systems

Countermine

Northrop Grumman Information Technology

Joint Warning and Reporting Network (JWARN)

One Semi-Automated Forces (OneSAF)

Northrop Grumman Laser Systems

Lightweight Laser Designator Range Finder (LLDR) AN/PED-1

Northrop Grumman Mission Systems

Joint Effects Model (JEM)

Northrop Grumman Space and Mission Systems Corp.

Forward Area Air Defense Command and Control (FAAD C2)

Olin Corp.

Small Caliber Ammunition

Oshkosh Corp.

Dry Support Bridge (DSB)

Family of Medium Tactical Vehicles (FMTV)

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

Improved Ribbon Bridge (IRB)

Mine Resistant Ambush Protected Vehicles (MRAP)

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

Osiris Therapeutics

Chemical Biological Medical Systems/Transformational Medical Technologies—Therapeutics

OverWatch Systems

Distributed Common Ground System—Army (DCGS-A)

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

Oxygen Generating Systems International

Air Warrior (AW)

Penn United

2.75 Inch Rocket Systems (Hydra)

Pennsylvania State University

Meteorological Measuring Set—Profiler (MMS-P)

Perkin Elmer

Joint Air-to-Ground Missile (JAGM)

PharmAthene

Chemical Biological Medical Systems—Prophylaxis

Pine Bluff Arsenal

Screening Obscuration Device (SOD)—Visual Restricted (Vr)

PKMM

Forward Area Air Defense Command and Control (FAAD C2)

Point Blank Solutions

Interceptor Body Armor

Precision CastParts Corp.

Lightweight 155mm Howitzer (LW155)

Prototype Integration Facility

Force XXI Battle Command Brigade and Below (FBCB2)

R&D Electronics

High Mobility Artillery Rocket System (HIMARS)

Rapiscan Systems

Non-Intrusive Inspection Systems (NIIS)

Raytheon

Advanced Field Artillery Tactical Data System (AFATDS)

Armored Knight

Bradley Fighting Vehicle Systems Upgrade

Distributed Common Ground System—Army (DCGS-A)

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

Excalibur (XM982)

Improved Target Acquisition System (ITAS)

Integrated Air and Missile Defense (IAMD)

Javelin

Joint Air-to-Ground Missile (JAGM)

Joint Land Attack Cruise Missile Defense

Elevated Netted Sensor System (JLENS)

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)

Nett Warrior (NW)

Night Vision Thermal Systems—Thermal Weapon Sight (TWS)

PATRIOT Advanced Capability—Three (PAC-3)

Secure Mobile Anti-Jam Reliable Tactical—Terminal (SMART-T)

Shadow Tactical Unmanned Aerial System (TUAS)

Stryker Family of Vehicles

Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

Raytheon Missile Systems

Counter-Rocket, Artillery and Mortar (C-RAM)

Javelin

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Raytheon Solipsys

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

Raytheon Technical Services

Air Warrior (AW)

Real Time Labs

High Mobility Artillery Rocket System (HIMARS)

Rock Island Arsenal

Mobile Maintenance Equipment Systems (MMES)

Rockwell Collins

Advanced Threat Infrared

Countermeasure/Common Missile Warning System (ATIRCM/CMWS)

Black Hawk/UH-60

CH-47 Chinook
 Close Combat Tactical Trainer (CCTT)
 Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)
 Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)
 Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)
 Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)
 Mounted Soldier System
 NAVSTAR Global Positioning System (GPS)
 Nett Warrior (NW)

Rohde & Schwarz

Test Equipment Modernization (TEMOD)

Rolls Royce Corp.

Kiowa Warrior

Rosetta Stone

Distributed Learning System (DLS)

Schutt Industries

Light Tactical Trailer (LTT)
 Tactical Electric Power (TEP)

Science Applications International Corp. (SAIC)

Advanced Threat Infrared Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
 Army Key Management System (AKMS)
 Aviation Combined Arms Tactical Trainer (AVCATT)
 Calibration Sets Equipment (CALSETS)
 Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment 1

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
 Installation Protection Program (IPP)
 Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)
 Non-Intrusive Inspection Systems (NIIS)
 One Semi-Automated Forces (OneSAF)

Science and Engineering Services, Inc. (SESI)

Air Warrior (AW)
 Joint Biological Standoff Detection System (JBSDS)

Secure Communication Systems Inc.

Air Warrior (AW)

Segovia Global IP Services

Combat Service Support Communications (CSS Comms)

Selex

Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)

Sensor Technologies

Common Hardware Systems (CHS)
 Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)
 Tactical Battle Command (TBC)/Maneuver Control System (MCS)

SETA

Command Post Systems and Integration (CPS&I)

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)
 Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

Sierra Nevada Corp.

Airborne Reconnaissance Low (ARL)
 Army Key Management System (AKMS)

Sikorsky

Black Hawk/UH-60

Silver Eagle Manufacturing Company (SEMCO)

Light Tactical Trailer (LTT)

Simulation Training & Instrumentation (STRICOM)

Abrams Tank Upgrade (M1A1)

Skillsoft Corporation

Distributed Learning System (DLS)

Smiths

Longbow Apache (AH-64D) (LBA)

Smiths Detection, Inc.

Chemical Biological Protective Shelter (CBPS)
 Joint Chemical Agent Detector (JCAD)
 Meteorological Measuring Set– Profiler (MMS-P)

Smiths Industries

High Mobility Artillery Rocket System (HIMARS)

Snap-on Industrial

Mobile Maintenance Equipment Systems (MMES)

SNC Technologies

Small Caliber Ammunition

Software Engineering Center–Belvoir (SEC-B)

Combat Service Support Communications (CSS Comms)

Sonoco

2.75 Inch Rocket Systems (Hydra)

Southwest Research Institute

Chemical Biological Medical Systems/ Transformational Medical Technologies– Therapeutics

Spectrum Microwave

Secure Mobile Anti-Jam Reliable Tactical– Terminal (SMART-T)

Sprint Communications Co.

Distributed Learning System (DLS)

SRA

Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

SRC

Warfighter Information Network–Tactical (WIN-T) Increment 1

Sypris

Army Key Management System (AKMS)

Systems, Studies, and Simulation

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

Systems Technologies (Systek), Inc.
 Combat Service Support Communications
 (CSS Comms)
 Global Command and Control System–
 Army (GCCS-A)

**Tank-Automotive and Armaments
 Command (TACOM)**
 Paladin/Field Artillery Ammunition Supply
 Vehicle (FAASV)

Tapestry
 Battle Command Sustainment Support
 System (BCS3)
 Joint Land Component Constructive
 Training Capability (JLCCTC)

Taylor-Wharton
 Air Warrior (AW)

TCOM
 Joint Land Attack Cruise Missile Defense
 Elevated Netted Sensor System (JLENS)

Tecom
 Shadow Tactical Unmanned Aerial System
 (TUAS)

Teledyne
 Secure Mobile Anti-Jam Reliable Tactical–
 Terminal (SMART-T)

Telephonics Corp.
 Air Warrior (AW)

Tel-Instrument Electronics Corp.
 Test Equipment Modernization (TEMOD)

Telos Corp.
 Combat Service Support Communications
 (CSS Comms)
 Medical Communications for Combat
 Casualty Care (MC4)

Textron Defense Systems
 Early Infantry Brigade Combat Team
 (E-IBCT) Capabilities IBCT Increment 1
 Spider

Textron Marine & Land Systems
 Armored Knight
 Armored Security Vehicle (ASV)

Thales
 Joint Tactical Radio System Handheld,
 Manpack, and Small Form Fit (JTRS
 HMS)
 Joint Tactical Radio System Multifunctional
 Information Distribution System (JTRS
 MIDS)
 Mounted Soldier System
 Tube-Launched, Optically-Tracked, Wire-
 Guided (TOW) Missiles

Thales Raytheon Systems
 Sentinel

The Protective Group
 Interceptor Body Armor

The Research Associates
 Biometric Enabling Capability (BEC)
 Joint Personnel Identification Version 2
 (JPIv2)

Titan Systems
 Advanced Field Artillery Tactical Data
 System (AFATDS)

TJM Electronic
 Joint Air-to-Ground Missile (JAGM)

Tobyhanna Army Depot
 Combat Service Support Communications
 (CSS Comms)
 Command Post Systems and Integration
 (CPS&I)
 Forward Area Air Defense Command and
 Control (FAAD C2)

Transtector
 Secure Mobile Anti-Jam Reliable Tactical–
 Terminal (SMART-T)

Tri-Tech USA Inc.
 Force Provider (FP)

Triumph Structures
 Lightweight 155mm Howitzer (LW155)

Ultra, Inc.
 Air/Missile Defense Planning and Control
 System (AMDPCS)

UNICOR
 Single Channel Ground and Airborne Radio
 System (SINGARS)

UNICOR Protective Materials Company
 Interceptor Body Armor

**United States Army Information
 Systems Engineering Command
 (USAISEC)**
 Combat Service Support Communications
 (CSS Comms)

URS Corp.
 Chemical Demilitarization

US Divers
 Air Warrior (AW)

Verhoff Machine
 Stryker Family of Vehicles

Vertigo Inc.
 Force Provider (FP)

Vertu Corp.
 Small Arms–Individual Weapons

VIATECH
 Advanced Field Artillery Tactical Data
 System (AFATDS)

ViaSat Inc.
 Force XXI Battle Command Brigade and
 Below (FBCB2)
 Joint Tactical Radio System Multifunctional
 Information Distribution System (JTRS
 MIDS)

Vision Technology Miltope Corporation
 Integrated Family of Test Equipment (IFTE)

Watervliet Arsenal
 Lightweight 155mm Howitzer (LW155)
 Mortar Systems

WESCAM

Airborne Reconnaissance Low (ARL)

Westwind Technologies Inc.

Air Warrior (AW)

Williams Fairey Engineering, Ltd

Dry Support Bridge (DSB)

**Wolf Coach, Inc., an L-3
Communications Company**

Weapons of Mass Destruction Elimination

XMCO

Dry Support Bridge (DSB)

Heavy Loader

High Mobility Engineer Excavator (HMEE)

I and III

Yuma Proving Ground

Paladin/Field Artillery Ammunition Supply
Vehicle (FAASV)

ZETA

Guardrail Common Sensor (GR/CS)

Contractors by State

Alabama

AEPCO
Anniston Army Depot
Austal USA
Aviation and Missile Solutions, LLC
BAE Systems
Boeing
CAS, Inc.
CEP Inc.
CMI
Computer Sciences Corp. (CSC)
DISA Satellite Transmission Services-
Global NETCOM
DMD
DRS-TEM
Dynetics, Inc.
EADS North America
E&TS Ktrs
Future Research Corp.
General Dynamics Assembly Operations
General Dynamics Ordnance and Tactical
Systems
Government
Helicopter Support, Inc.
Intuitive Research and Technology
ITT-CAS, Inc.
Javelin Joint Venture
Lockheed Martin
MEADS, Intl.
Northrop Grumman
Prototype Integration Facility
R&D Electronics
Science Applications International Corp.
(SAIC)

Science and Engineering Services Inc.
(SESI)
SETA
Systems, Studies, and Simulation
Taylor-Wharton
URS Corp.
Vision Technology Miltope Corporation
Westwind Technologies Inc.

Arizona

Acme Electric
Alliant Techsystems
ArmorWorks
Avnet
BAE Systems
Boeing
DISA Satellite Transmission Services-
Global NETCOM
General Dynamics
General Dynamics C4 Systems, Inc.
Honeywell
Intercoastal Electronics
L-3 Communications Electro-Optic
Systems
Lockheed Martin
Raytheon
Raytheon Missile Systems
TJM Electronic
United States Army Information Systems
Engineering Command (USAISEC)
Yuma Proving Ground

Arkansas

Aerojet
AMTEC Corp.

B&M Painting
General Dynamics Armament and
Technical Products
General Dynamics Ordnance and Tactical
Systems
Lockheed Martin
Pine Bluff Arsenal
URS Corp.

California

Aerovironment, Inc.
Agilent Technologies, Inc.
All American Racers, Inc.
ArgonST Radix
ArmaceL Armor
Alliant Techsystems
BAE Systems
BAE Systems Land & Armaments
Boeing
Ceradyne, Inc.
CTT
CUBIC Defense Sys.
Esterline Defense Technologies
General Atomics, Aeronautical Systems
Inc.
General Dynamics Ordnance and Tactical
Systems
Gentex Corp.
Gibson and Barnes
Indigo System Corp.
Kidde Dual Spectrum
L-3 Communications
L-3 Interstate Electronics Corp.
Lockheed Martin
Marvin Engr
Northrop Grumman
Northrop Grumman Mission Systems
Northrop Grumman Space and Mission
Systems Corp.
Rapiscan Systems

Raytheon
Rockwell Collins
Science Applications International Corp.
(SAIC)
Secure Communication Systems Inc.
Tapestry
Tecom
Thales Raytheon Systems
Triumph Structures
US Divers
Vertigo Inc.
ViaSat Inc.

Colorado

ITT
Linqest Corp
Lockheed Martin
Northrop Grumman Electronic Systems

Connecticut

BAE Systems
Colt's Manufacturing Co.
DRS Fermont
Goodrich
Hamilton Sundstrand
Helicopter Support, Inc.
Lex Products Corp.
Sikorsky

Delaware

ANP Technologies
District of Columbia
UNICOR

Florida

Advanced Systems Technology
CAE USA
Chenega
Computer Sciences Corp. (CSC)
Conax

DRS Optronics, Inc.
 DRS Tactical Systems
 DRS Technologies
 DSE (Balimoy) Corp.
 ECC International
 General Dynamics
 General Dynamics Ordnance and Tactical Systems
 Harris Corp.
 Hellfire LLC
 Honeywell
 Kaegan Corporation
 L-3 Communications
 L-3 CyTerra Corp.
 Lockheed Martin
 Lockheed Martin Gyrocam Systems LLC
 Longbow LLC
 Mainstream Engineering
 MEADS, Intl.
 Medical Education Technologies
 Northrop Grumman
 Northrop Grumman Information Technology
 Northrop Grumman Integrated Systems
 Northrop Grumman Laser Systems
 Point Blank Solutions
 Raytheon
 Real Time Labs
 Science Applications International Corp. (SAIC)
 Simulation Training & Instrumentation (STRICOM)
 Smiths
 Sypris
 Thales Raytheon Systems
 The Protective Group
 UNICOR Protective Materials Company

Georgia

CSS

EPS Corp.
 General Dynamics SATCOM
 Georgia Tech Applied Research Corp.
 Gulfstream
 JCB Inc.
 Kipper Tool Company
 Meggitt Training

Idaho

Transtector

Illinois

Boeing
 Caterpillar
 Caterpillar C-15
 Caterpillar Defense and Federal Products
 C.E. Niehoff & Co.
 E.D. Etnyre and Co.
 General Dynamics Ordnance and Tactical Systems
 GTP
 Kaiser Aluminum
 L-3 Communications
 Mandus Group
 Navistar Defense
 Northrop Grumman
 Olin Corp.
 Rock Island Arsenal
 Snap-on Industrial
 Tank-Automotive and Armaments Command (TACOM)

Indiana

Acme Radiator
 Allison Transmission
 AM General
 ITT
 Raytheon
 Raytheon Technical Services
 Rolls Royce Corp.

Iowa

American Ordnance
 Rockwell Collins

Kansas

Detroit Diesel

Kentucky

DRS-ESI
 DRS Technologies

Louisiana

Textron Marine & Land Systems
 Maine
 General Dynamics Armament and Technical Products
 Group Home Foundation, Inc.

Maryland

AAI Corp.
 Aberdeen Test Center
 Binary Group
 BAE Systems
 COMTECH Mobile Datacom
 DynPort Vaccine
 ECBC
 FASCAN International
 Global Defense Engineering
 IBM
 ICx™ Technologies, Inc.
 iLuMinA Solutions
 Johns Hopkins University Applied Physics Laboratory
 Litton Advanced Systems
 Lockheed Martin
 MaTech
 Meridian Medical Technologies
 Naval Air Warfare Center Aircraft Division
 Northrop Grumman
 Osiris Therapeutics

PharmAthene
 Raytheon
 Raytheon Solipsys
 Rohde & Schwarz
 Science and Engineering Services, Inc. (SESI)
 Sierra Nevada Corp.
 Smiths Detection, Inc.
 TCOM
 Thales

Massachusetts

Acambis, Inc.
 American Science & Engineering, Inc.
 BAE Systems
 Curtiss-Wright
 Engility
 General Dynamics
 General Dynamics C4 Systems, Inc.
 General Electric
 iRobot
 L-3 CyTerra Corp.
 Lincoln Labs
 Lockheed Martin Missiles and Fire Control
 Raytheon
 Spectrum Microwave
 Textron Defense Systems
 Wolf Coach, Inc., an L-3 Communications Company

Michigan

AAR Mobility Systems
 AM General
 Avon Protection Systems
 Demmer
 Detroit Diesel
 Eaton Aeroquip
 Emergent BioSolutions
 ESA Mfg.
 General Dynamics

General Dynamics Land Systems
 General Tactical Vehicle
 Howmet Castings
 Kaydon
 L-3 Communications
 Lapeer Industries Inc.
 Marsh Industrial
 Meritor
 Modineer Co. Inc.
 North American Controls
 Tank-Automotive and Armaments
 Command (TACOM)
 XMCO

Minnesota

Alliant Techsystems
 Cummins Power Generation
 General Dynamics C4 Systems, Inc.

Mississippi

American Eurocopter
 BAE Systems
 Eaton-Vickers
 Engineering Research and Development
 Command
 Thales Raytheon Systems

Missouri

Alliant Techsystems
 Boeing
 DRS Sustainment Systems, Inc.

Nebraska

General Dynamics Armament and
 Technical Products

Nevada

PKMM
 Sierra Nevada Corp.

New Hampshire

BAE Systems
 Skillsoft Corporation

New Jersey

Airborne Systems North America
 Armaments R&D Ctr
 AMT
 BAE Systems
 BAE Systems C4
 Booz Allen Hamilton
 Breeze
 CACI
 CECOM Software Engineering Center
 Computer Sciences Corp. (CSC)
 David H. Pollock Consultants
 Dewey Electronics
 Engineering Solutions and Products (ESP)
 ITT
 JANUS Research
 L-3 Communications
 L-3 Communications Space & Navigation
 Lockheed Martin
 MITRE
 Northrop Grumman
 Sensor Technologies
 Smiths Industries
 SRC
 Systems Technologies (Systek), Inc.
 Tel-Instrument Electronics Corp.

New Mexico

Aerojet General
 EG&G
 Honeywell
 Lockheed Martin Missiles and Fire Control
 MCT Industries, Inc.

New York

ASDI

Bren-Tronics
 Capgemini
 Carleton Technologies Inc.
 L-3 Global Communications Solutions, Inc.
 Lockheed Martin
 MEADS, Intl.
 Med-Eng Systems Inc.
 Moog Inc.
 Oxygen Generating Systems International
 Telephonics Corp.
 The Research Associates
 Watervliet Arsenal
 North Carolina
 Daimler Truck, North America/Freightliner
 General Dynamics Armament and
 Technical Products
 MSA Armor and Equipment
 TCOM

Ohio

CMC Electronics
 Defiance
 DRS Mobile Environmental
 GEP
 Hunter Defense Technologies
 Hunter Manufacturing
 Joint Systems Manufacturing Center
 (JSMC)
 MacAulay-Brown, Inc.
 Mil-Mar Century, Inc.
 Perkin Elmer
 Precision CastParts Corp.
 Verhoff Machine

Oklahoma

L-3 Westwood
 Titan Systems
 VIATECH

Oregon

Daimler Truck, North America/Freightliner
 Mountain High Equipment and Supply Co.
 Silver Eagle Manufacturing Company
 (SEMCO)
 URS Corp.
 Precision CastParts Corp.
 Pennsylvania
 Action Manufacturing
 BAE Systems
 BAE Systems Land & Armaments, Ground
 Systems Division
 Boeing
 Fidelity Technologies Corp.
 General Dynamics Ordnance and Tactical
 Systems - Scranton Operation
 ICx Technologies
 JLG Industries, Inc.
 KDH Defense Systems
 Kongsberg Defense & Aerospace
 L-3 Communications
 L-3 Communications/Brashear
 Letterkenny Army Depot
 Penn United
 Pennsylvania State University
 Sonoco
 Tobyhanna Army Depot
 South Carolina
 Caterpillar
 Charleston Marine Containers
 DSE (Balimoy) Corp.
 Fabrique National Manufacturing, LLC
 Force Protection Industries, Inc.
 Michelin

Tennessee

American Ordnance
 BAE/Holston
 Cummins Mid-South LLC
 Teledyne

Texas

American Eurocopter
 Apptricity Corp.
 BAE Systems
 BAE-TVS
 Beacon Industries
 Bell Helicopter, Textron
 Boeing
 Casteel Manufacturing
 Critical Solutions International, Inc.
 Dell Computer Corporation
 Dell Federal Systems
 DRS Optronics
 DRS Technologies
 DynCorp
 EFW
 Elbit Systems of America
 Helicopter Support, Inc.
 General Dynamics
 Independent Pipe Products
 Kalmar Rough Terrain Center (KRTC) LLC
 King Aerospace
 L-3 Communications
 L-3 Communications Electro-Optic
 Systems
 Lockheed Martin
 M7 Aerospace
 MANTECH
 Oshkosh Corp.
 OverWatch Systems
 Raytheon
 Raytheon Missile Systems
 Southwest Research Institute
 Thales Raytheon Systems
 Ultra, Inc.

Utah

Idaho Technologies
 Klune
 L-3 Communications

Moog Inc.
 Rockwell Collins
 URS Corp.

Vermont

General Dynamics
 Tri-Tech USA Inc.

Virginia

Accenture
 Aerial Machine and Tool Corp
 Aerojet
 Alliant Techsystems
 Athena
 BAE Systems
 Booz Allen Hamilton
 CACI
 Computer Sciences Corp. (CSC)
 EADS North America
 Electronic Consulting Services, Inc.
 General Dynamics
 General Dynamics Advanced Information
 Systems
 GTSI
 Heckler and Koch Defense Inc.
 Helicopter Support, Inc.
 IBM
 ITT
 Juniper Networks
 L-3 Communications
 L-3 Services, an MPRI Company
 Lockheed Martin
 LMI Consulting
 LTI DataComm, Inc.
 MPRI, an L-3 Company
 NCI Information Systems
 NIITEK
 Northrop Grumman Information Systems
 Northrop Grumman Information
 Technology

Rosetta Stone
 Science Applications International Corp.
 (SAIC)
 Segovia Global IP Services
 Software Engineering Center–Belvoir
 (SEC-B)
 Sprint Communications Co, Gov Svs Div.
 SRA
 Telos Corp.
 Vertu Corp.
 ZETA

Washington

Berg Companies, Inc.
 Fluke Corp.
 N-Link Corp

West Virginia

Alliant Techsystems
 Azimuth Inc.

Wisconsin

AMTEC Corp.
 Dedicated Computing
 Oshkosh Corp.
 Schutt Industries

INTERNATIONAL CONTRACTORS**Canada**

Cangene, Corp.
 General Dynamics Land Systems, Canada
 General Dynamics Ordnance and Tactical
 Systems
 SNC Technologies
 WESCAM

Denmark

A/S Hydrema

England

Atlantic Inertial Units

France

EuroMIDS
 Thales

Germany

EADS
 H&K Gmbh
 General Dynamics European Land
 Systems

Italy

Selex

Sweden

BAE Systems Bofors Defense (teamed
 with Raytheon)

Spain

Indra

United Kingdom

BAE Systems
 FBM Babcock Marine
 Thales
 Williams Fairey Engineering, Ltd

Points of Contact

2.75 Inch Rocket Systems (Hydra)

JAMS Project Office
SFAE-MSL-JAMS
Redstone Arsenal, AL 35898-8000

Abrams Tank Upgrade (M1A2)

HBCT
SFAE-GCS-CS-A
6501 E. 11 Mile Rd.
Warren, MI 48397-5000

Advanced Field Artillery Tactical Data System (AFATDS)

Product Director, Fire Support Command and Control
SFAE-C3T-BC-FSC2
Building 2525
Ft. Monmouth, NJ 07703-5404

Air Warrior (AW)

PM Air Warrior
SFAE-SDR-AW
6726 Odyssey Drive NW
Huntsville, AL 35806

Air/Missile Defense Planning and Control System (AMDPCS)

C-RAM Program Office
SFAE-C3T-CR-AMD
Redstone Arsenal, AL 35898-5000

Airborne Reconnaissance Low (ARL)

PM Aerial Common Sensor
SFAE-IEWS-ACS
Building 800
Ft. Monmouth, NJ 07703

All Terrain Lifter Army System (ATLAS)

Product Manager, Combat Engineer/
MHE
SFAE-CSS-FP-C
6501 East 11 Mile rd
Mail Stop 401
Warren, MI 48397-5000

Armored Knight

HBCT
SFAE-GCS-HBCT
6501 East 11 Mile Rd.
Warren, MI 43897-5000

Armored Security Vehicle (ASV)

PM Armored Security Vehicle
SFAE-CSS-TV-A
6501 11 Mile Rd.
Warren, MI 48397-5000

Army Key Management System (AKMS)

PD, COMSEC (Provisional)
SFAE-C3T-COMSEC
Ft. Monmouth, NJ 07703

Artillery Ammunition

PM Combat Ammunition Systems
SFAE-AMO-CAS
Picatinny Arsenal, NJ 07806

Aviation Combined Arms Tactical Trainer (AVCATT)

Project Manager Combined Arms
Tactical Trainers
SFAE-STRI-PMCATT
12350 Research Parkway
Orlando, FL 32826-3276

Battle Command Sustainment Support System (BCS3)

PM Battle Command Sustainment
Support System (BCS3)
SFAE-C3T-GC-BCS-3
10109 Gridley Rd.
Ft. Belvoir, VA 22060

Biometric Enabling Capability (BEC)

Project Manager PM DoD Biometrics
SFAE-PS-BI
Building 1445
Ft. Belvoir, VA 22060-5526

Black Hawk/UH-60

PM Utility Helicopters
SFAE-AV-UH
Building 5308, 4th Floor
Redstone Arsenal, AL 35898

Bradley Fighting Vehicle Systems Upgrade

Program Manager, Heavy Brigade
Combat Team
SFAE-GCS-CS
6501 East 11 Mile Rd.
Warren, MI 43897-5000

Calibration Sets Equipment (CALSETS)

Test, Measurement, and Diagnostic
Equipment
Product Director
Building 3651
Redstone Arsenal, AL 35898

Chemical Biological Medical Systems–Diagnostics

JPM CBMS
64 Thomas Johnson Drive
Frederick, MD 21702

Chemical Biological Medical Systems–Prophylaxis

JPM CBMS
64 Thomas Johnson Drive
Frederick, MD 21702

Chemical Biological Medical Systems / Transformational Medical Technologies –Therapeutics

JPM CBMS
64 Thomas Johnson Drive
Frederick, MD 21702

Chemical Biological Protective Shelter (CBPS)

Joint Project Manager
Collective Protection
1333 Isaac Hull Ave SE
Washington Navy Yard
Washington, DC 20375-5150

Chemical, Biological, Radiological, Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DR SKO)

SFAE-CBD-NBC-R
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Chemical Demilitarization

Chemical Materials Agency
AMSCM-D
5183 Blackhawk Road
APG-EA, MD 21010-5424

CH-47F Chinook

SFAE-AV-CH-ICH
Building 5678
Redstone Arsenal, AL 35898

Close Combat Tactical Trainer (CCTT)

Project Manager Combined Arms
Tactical Trainers
SFAE-STRI-PMCATT
12350 Research Parkway
Orlando, FL 32826-3276

Combat Service Support Communications (CSS Comms)

PM Defense Communications and Army
Transmission Systems
SFAE-PS-TS-DWT
6700 Springfield Center Dr.
Suite E
Springfield, VA 22150

Command Post Systems and Integration (CPS&I)

Project Manager Command Posts
SFAE-C3T-CP
Building 456
Ft. Monmouth, NJ 07703

Common Hardware Systems (CHS)

Product Director Common Hardware
Systems (PD-CHS)
SFAE-C3T-CP-CHS
Building 457
Ft. Monmouth, NJ 07703

Common Remotely Operated Weapon Station (CROWS)

PM Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Counter Defilade Target Engagement (CDTE)–XM25

PEO Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Countermine

PM Countermine & EOD
SFAE-AMO-CCS
Ft. Belvoir, VA 22060-5811

Counter-Rocket, Artillery and Mortar (C-RAM)

C-RAM Program Office
SFAE-C3T-CR
Redstone Arsenal, AL 35898-5000

Defense Enterprise Wideband SATCOM System (DEWSS)

PM Defense Communications and Army
Transmission Systems
Building 209
Ft. Monmouth, NJ 07703-5509

Distributed Common Ground System–Army (DCGS-A)

PM Distributed Common Ground
System–Army (DCGS-A)
SFAE-IEW-DCG
Building 550
Saltzman Ave.
Ft. Monmouth, NJ 07703-5301

Distributed Learning System (DLS)

PD DLS
SFAE-PS-DL
11846 Rock Landing Dr.
Suite B
Newport News, VA 23606

Dry Support Bridge (DSB)

PM Bridging Systems
SFAE-CSS-FP-H MS 401
6501 East 11 Mile Rd.
Warren, MI 43897-5000

Early Infantry Brigade Combat Team (E-IBCT) Capabilities IBCT Increment I

PM IBCT
SFAE-INT-CT
6501 E. 11 Mile
Warren, MI 48397

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS)

PM Aerial Common Sensor
SFAE-IEWS-ACS
Building 800
Ft. Monmouth, NJ 07703

Excalibur (XM982)

PM Combat Ammo Systems
SFAE-AMO-CAS-EX
Building 172 Buffington Road
Picatinny Arsenal, NJ 07806-5000

Family of Medium Tactical Vehicles (FMTV)

Product Manager - Medium Tactical
Vehicles
SFAE-CSS
6501 East 11 Mile Rd.
Warren, MI 43897-5000

Fixed Wing

DA Systems Coordinator-Fixed Wing
ASA (ALT) Aviation-Intelligence &
Electronic Warfare
SAAL-SAI, Room 10023
2511 S. Jefferson Davis Highway
Arlington, VA 22202

Force Protection Systems

SFAE-CBD-Guardian
5109 Leesburg Pike
Falls Church, VA 22041

Force Provider (FP)

PM Force Sustainment Systems
SFAE-CSS-FP-F
Kansas Street
Natick, MA 01760-5057

Force XXI Battle Command Brigade and Below (FBCB2)

PM FBCB2
SFAE-C3T-FBC
Building 2525
Bay 1
Ft. Monmouth, NJ 07703-5408

Forward Area Air Defense Command and Control (FAAD C2)

C-RAM Program Office
SFAE-C3T-CR
Redstone Arsenal, AL 35898-5000

Future Tank Main Gun Ammunition (FTMGA)

PM Maneuver Ammunition Systems
SFAE-AMO-MAS
Picatinny Arsenal, NJ 07806

General Fund Enterprise Business Systems (GFEBs)

SFAE-PS-GF
5911 Kingstowne Village Parkway
Suite 600
Alexandria, VA 22315

Global Combat Support System—Army (GCSS-Army)

Project Manager GCSS-Army
SFAE-PS-GC
3811 Corporate Rd Suite C
Petersburg, VA 23805

Global Command and Control System—Army (GCCS-A)

Product Manager, Strategic Battle Command
SFAE-C3T-BC-SBC
Building 2525
Ft. Monmouth, NJ 07703

Grey Eagle Extended Range Multiple Purpose (ERMP) Unmanned Aircraft System (UAS)

Project Manager Unmanned Aircraft Systems (UAS)
SFAE-AV-UAS
5300 Martin Road
Redstone Arsenal, AL 35898-5000

Ground Combat Vehicle (GCV)

PM GCV
SFAE-GCS-GV
5500 Enterprise Dr.
Warren, MI 48043

Guardrail Common Sensor (GR/CS)

PM Aerial Common Sensor
SFAE-IEWS-ACS
Building 800
Ft. Monmouth, NJ 07703

Guided Multiple Launch Rocket System (GMLRS) DPICM/Unitary/Alternative Warhead (Tactical Rockets)

Precision Fires Rocket and Missile Systems
SFAE-MSLS-PF
BLDG 5250 Martin Road
Redstone Arsenal, AL 35898

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

PM Heavy Tactical Vehicles
SFAE-CSS-TV-H
Mail Stop 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Heavy Loader

PM for Combat Engineer Materiel Handling Equipment
SFAE-CSS-FP-C
6501 East 11 Mile Road
Warren, MI 48397-5000

Hellfire Family of Missiles

JAMS Project Office
SFAE-MSLS-JAMS
Redstone Arsenal, AL 35898

Helmet Mounted Night Vision Devices (HMNVD)

PM Soldier Sensors and Lasers
SFAE-SDR-SSL
10170 Beach Road
Building 325
Ft. Belvoir, VA 22060

High Mobility Artillery Rocket System (HIMARS)

Precision Fires Rocket and Missile Systems Project Office
SFAE-MSL-PF-FAL
Building 5250
Redstone Arsenal, AL 35898

High Mobility Engineer Excavator (HMEE) I and III

Product Manager Combat Engineer/MHE
SFAE-CSS-FP-C
6501 East 11 Mile Rd
Warren, MI 48397-5000

High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) Family of Vehicles

Product Manager Light Tactical Vehicles
SFAE-CSS-TV-L
6501 11 Mile Rd. MS 245
Warren, MI 43897

Improved Environmental Control Units (IECU)

Project Manager Mobile Electric Power
SFAE-C3T-MEP-OPM
5850 Delafield Rd
Ft. Belvoir, VA 22060-5809

Improved Ribbon Bridge (IRB)

PM Bridging Systems
(SFAE-CSS-FP-H) MS 401
6501 East 11 Mile Rd.
Warren, MI 43897

Improved Target Acquisition System (ITAS)

PM Close Combat Weapon Systems Project Office
SFAE-MSL-CWS-J
Redstone Arsenal, AL 35898

Installation Protection Program (IPP)

SFAE-CBD-Guardian
5109 Leesburg Pike
Falls Church, VA 22041

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

Project Manager Training Devices
SFAE-STRI-PMTRADE
12350 Research Parkway
Orlando, FL 32826

Integrated Air and Missile Defense (IAMD)

PEO Missiles and Space
SFAE-MSLS-IAMD
Program Executive Office Missiles and Space Integrated Air and Missile Defense Project Office
Building 5250
Redstone Arsenal, AL 35898-8000

Integrated Family of Test Equipment (IFTE)

Test, Measurement, and Diagnostic Equipment
Product Director
Building 3651
Redstone Arsenal, AL 35898

Interceptor Body Armor

Product Manager Soldier Survivability
SFAE-SDR-EQ
10170 Beach Road
Building 325
Ft. Belvoir, VA 22060

Javelin

PM Close Combat Weapon Systems
Project Office
SFAE-MSL-CWS-J
Redstone Arsenal, AL 35898

Joint–Automatic Identification Technology (J-AIT)

Product Manager, J-AIT
SFAE-PS-AI
8580 Cinder Bed Road
Newington, VA 22122

Joint Air-to-Ground Missile (JAGM)

Joint Air to Ground Missile Product Office
SFAE-MSL-JAMS-M
5250 Martin Rd.
Redstone Arsenal, AL 35898

Joint Battle Command–Platform (JBC-P)

Force XXI Battle Command Brigade and Below
SFAE-C3T-FBC
Building 2525
Bay 1
Ft. Monmouth, NJ 07703-5408

Joint Biological Point Detection System (JBPDS)

SFAE-CBD-NBC-D
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Joint Biological Standoff Detection System (JBSDS)

SFAE-CBD-NBC-D
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Joint Chem/Bio Coverall for Combat Vehicle Crewman (JC3)

Joint Project Manager
Individual System
50 Tech Parkway
Stafford, VA 22556

Joint Chemical Agent Detector (JCAD)

SFAE-CBD-NBC-D
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Joint Chemical Biological Radiological Agent Water Monitor (JCBRAWM)

SFAE-CBD-NBC-R
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Joint Effects Model (JEM)

Joint Project Manager
Information System
4301 Pacific Highway
San Diego, CA 92110

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

Project Manager Soldier Sensors and Lasers
SFAE-SDR-SSL
10170 Beach Road, Building 325
Ft. Belvoir, VA 22060

Joint High Speed Vessel (JHSV)

Product Director Army Watercraft Systems
SFAE-CSS-FP-W
6501 E. 11 Mile Road
Warren, MI 48397-5000

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

PEO Missiles and Space
SFAE-MSLS-CMDS-JLN
P.O. Box 1500
Huntsville, AL 35807

Joint Land Component Constructive Training Capability (JLCCTC)

Project Manager Constructive Simulation
STRI-SFAE-PMCONSIM
12350 Research Parkway
Orlando, FL 32826

Joint Light Tactical Vehicle (JLTV)

PM Joint Light Tactical Vehicle (JLTV)
SFAE-CSS-JC-JL/MS 640
Building 301/2rd Floor
43087 Lake Street, NE
Harrison Twp, MI 48045-4941

Joint Personnel Identification Version 2 (JPIv2)

PM DoD Biometrics
SFAE-PS-BI
Building 1445
Ft. Belvoir, VA 22060-5526

Joint Precision Airdrop System (JPADS)

PM Force Sustainment Systems
SFAE-CSS-FP-F
Kansas Street
Natick, MA 01760-5057

Joint Service General Purpose Mask (JSGPM)

JPEO CBD
5203 Leesburg Pike
Skyline #2, Suite 1609
Falls Church, VA 22041

Joint Service Transportable Decontamination System (JSTDS)–Small Scale (SS)

Joint Project Manager
Decontamination
50 Tech Parkway
Stafford, VA 22556

Joint Tactical Ground Stations (JTAGS)

Lower Tier Project Office
SFAE-MSLS-LT
Lower Tier Project Office
P.O. Box 1500
Huntsville, AL 35807

Joint Tactical Radio System Airborne and Maritime/Fixed Station (JTRS AMF)

Joint Program Executive Office (JPEO)
Joint Tactical Radio System (JTRS)
33000 Nixie Way Building 50
Suite 339
San Diego, CA 92147-5110

Joint Tactical Radio System Ground Mobile Radios (JTRS GMR)

Joint Program Executive Office (JPEO)
Joint Tactical Radio System (JTRS)
33000 Nixie Way Building 50
Suite 339
San Diego, CA 92147-5110

Joint Tactical Radio System Handheld, Manpack, and Small Form Fit (JTRS HMS)

Joint Program Executive Office (JPEO)
Joint Tactical Radio System (JTRS)
33000 Nixie Way Building 50
Suite 339
San Diego, CA 92147-5110

Joint Tactical Radio System Multifunctional Information Distribution System (JTRS MIDS)

Joint Program Executive Office (JPEO)
Joint Tactical Radio System (JTRS)
33000 Nixie Way Building 50
Suite 339
San Diego, CA 92147-5110

Joint Tactical Radio System, Network Enterprise Domain (JTRS NED)

Joint Program Executive Office (JPEO)

Joint Warning and Reporting Network (JWARN)

Joint Project Manager
Information System
4301 Pacific Highway
San Diego, CA 92110

Kiowa Warrior

SFAE-AV-ASH-KW
5681 Wood Road
Redstone Arsenal, AL 35898

Light Tactical Trailer (LTT)

Product Manager Light Tactical Vehicles
SFAE-CSS-TV-L
6501 11 Mile Rd.
MS 245
Warren, MI 43897

Light Utility Helicopter (LUH)/UH-72A Lakota

LUH PM
PEO AVN-UH-LUH
Light Utility Helicopter (LUH)/UH-72A
Lakota, LUH PM
Huntsville, AL 35898-5000

XM806—Lightweight .50 cal Machine Gun

PM Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Lightweight 155mm Howitzer System (LW155)

JPMO-LW155
SFAE-GCS-JLW
Building 151
Picatinny Arsenal, NJ 07806

Lightweight Laser Designator/ Rangefinder (LLDR) AN/PED-1

PM Soldier Sensors and Lasers
Soldier
5901 Putnam Road
Ft. Belvoir, VA 22060

Line Haul Tractor

PM Heavy Tactical Vehicles
SFAE-CSS-TV-H
Mail Stop 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Load Handling System Compatible Water Tank Rack (Hippo)

PM Petroleum and Water Systems
SFAE-CSS-FP-P
6501 East 11 Mile Rd.
Mail Stop 111
Warren, MI 43897

Longbow Apache (AH-64D) (LBA)

PM Apache
SFAE-AV
Building 5681
Redstone Arsenal, AL 35898

Medical Communications for Combat Casualty Care (MC4)

PM Medical Communications for Combat Casualty Care (MC4)
524 Palacky St.
Ft. Detrick, MD 21702

Medical Simulation Training Center (MSTC)

Project Manager Combined Arms
Tactical Trainers
SFAE-STRI-PMCATT
12350 Research Parkway
Orlando, FL 32826-3276

Medium Caliber Ammunition (MCA)

PM Maneuver Ammunition Systems
SFAE-AMO-MAS
Picatinny Arsenal, NJ 07806

Medium Extended Air Defense System (MEADS)

Project Manager, Lower Tier Project Office
SFAE-MSLS-LT-CAP
PEO Missiles and Space
P.O. Box 1500
Huntsville, AL 35807

Meteorological Measuring Set—Profiler (MMS-P)

Product Director for Target Identification & Meteorological Sensors
SFAE-IEWS-NS-TIMS
Avenue of Memories (563)
Ft. Monmouth, NJ 07703

Mine Protection Vehicle Family (MPVF)

Product Manager Assured Mobility Systems
SFAE-CSS-FP-AMS
6501 East 11 Mile Rd
Warren, MI 43897-5000

Mine Resistant Ambush Protected Vehicles (MRAP)

JPO MRAP
SFAE-CSS-MR
6501 East 11 Mile Rd
Warren, MI 48397

Mobile Maintenance Equipment Systems (MMES)

PM-SKOT
SFAE-CSS-JC-SK
Building 302, 2nd Floor
29661 George Avenue
Harrison Twp, MI 48045-4941

Modular Fuel System (MFS)

PM Petroleum and Water Systems
SFAE-CSS-FP-P
501 East 11 Mile Rd.
Mail Stop 111
Warren, MI 48397

Mortar Systems

PM Combat Ammunition Systems
SFAE-AMO-CAS-MS
Picatinny Arsenal, NJ 07806

Mounted Soldier System

PM Soldier Warrior
SFAE-SDR-SWAR
10125 Kingman Rd
Ft. Belvoir, VA 22060-5820

Movement Tracking System (MTS)

PM Logistics Information Systems
800 Lee Ave.
Building 5100
Ft. Lee, VA 23801

Multiple Launch Rocket System (MLRS) M270A1

Precision Fires Rocket and Missile
Systems Project Office
SFAE-MSL-PF-FAL
Building 5250
Redstone Arsenal, AL 35898

NAVSTAR Global Positioning System (GPS)

PD GPS
SFAE-IEW&S-NS-GPS
328 Hopkins Road
Building 246
Aberdeen Proving Ground, MD 21005

Nett Warrior (NW)

SFAE-SDR-SWAR
10125 Kingman Rd
Building 317
Ft. Belvoir, VA 22060

Night Vision Thermal Systems–Thermal Weapon Sight (TWS)

PM Soldier Sensors and Lasers
Soldier
5901 Putnam Road
Ft. Belvoir, VA 22060

Non-Intrusive Inspection Systems (NIIS)

SFAE-CBD-Guardian
5109 Leesburg Pike
Falls Church, VA 22041

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)–Stryker Sensor Suite

SFAE-CBD-NBC-R
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

One Semi-Automated Force (OneSAF)

Project Manager Constructive
Simulation
SFAE-STRI-PMCONSIM
12350 Research Parkway
Orlando, FL 32826

Paladin/Field Artillery Ammunition Supply Vehicle (FAASV)

HBCT
SFAE-GCS-HBCT
6501 East 11 Mile Rd.
Warren, MI 48397

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

PM Heavy Tactical Vehicles
SFAE-CSS-TV-H
Mail Stop 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

PATRIOT Advanced Capability–Three (PAC-3)

Project Manager, Lower Tier Project
Office
SFAE-MSLS-LT
P.O. Box 1500
Huntsville, AL 35807

Precision Guidance Kit (PGK)

PM Combat Ammunition Systems
SFAE-AMO-CAS
Picatinny Arsenal, NJ 07806

Prophet

PM PROPHET
SFAE-IEW EWP
Building 288
Sherrill Ave.
Monmouth, NJ 07703

Raven Small Unmanned Aircraft System (SUAS)

Project Manager Unmanned Aircraft
Systems (UAS)
SFAE-AV-UAS-SU
5300 Martin Road
Redstone Arsenal, AL 35898-5000

Rough Terrain Container Handler (RTCH)

Product Manager Combat Engineer/MHE
SFAE-CSS-FP-C
6501 East 11 Mile Rd
Mail Stop 401
Warren, MI 48397-5000

Screening Obscuration Device (SOD)–Visual Restricted (Vr)

SFAE-CBD-NBC-R
5183 Blackhawk Rd.
Aberdeen Proving Ground, MD 21010

Secure Mobile Anti-Jam Reliable Tactical–Terminal (SMART-T)

PM WIN-T
SFAE-C3T-WIN-SATCOM
Building 910
Murphy Drive
Ft. Monmouth, NJ 07703

Sentinel

PEO Space and Missile Defense
SFAE-MSLS
Redstone Arsenal, AL 35898

Shadow Tactical Unmanned Aircraft System (TUAS)

Project Manager Unmanned Aircraft Systems (UAS)
SFAE-AV-UAS
5300 Martin Road
Redstone Arsenal, AL 35898-5000

Single Channel Ground and Airborne Radio System (SINGARS)

PM FCB2
SFAE-C3T-FBC-TRC
Building 455 North
Ft. Monmouth, NJ 07703-5000

Small Arms—Crew Served Weapons

PM Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Small Arms—Individual Weapons

PM Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Small Caliber Ammunition

PM Maneuver Ammunition Systems
SFAE-AMO-MAS
Picatinny Arsenal, NJ 07806

Sniper Night Sight (SNS), AN/PVS-10

PM Soldier Weapons
SFAE-SDR-SW
PEO Soldier
Picatinny Arsenal, NJ 07806

Spider

PM Close Combat Systems
SFAE-AMO-CCS
Picatinny Arsenal, NJ 07806

Stryker Family of Vehicles

Project Manager—Stryker Brigade Combat Team
SFAE-GCS-BCT MS 325
6501 East 11 Mile Rd.
Warren, MI 48397

Surface Launched Advanced Medium Range Air-To-Air Missile (SLAMRAAM)

PEO Missile and Space
SFAE-MSLA-CMDS
Redstone Arsenal, AL 35898

Tactical Battle Command (TBC)/ Maneuver Control System (MCS)

Product Manager, Tactical Battle Command
SFAE-C3T-BC-TBC
Building 2525
Ft. Monmouth, NJ 07703

Tactical Electric Power (TEP)

Project Manager Mobile Electric Power
SFAE-C3T-MEP-OPM
5850 Delafield Road
Ft. Belvoir, VA 22060-5809

Tank Ammunition (TA)

PM Maneuver Ammunition Systems
SFAE-AMO-MAS
Picatinny Arsenal, NJ 07806

Test Equipment Modernization (TEMOD)

Test, Measurement, and Diagnostic Equipment
Product Director
Building 3651
Redstone Arsenal, AL 35898

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

PD TIS
SFAE-PS-TC
200 Stovall St.
Suite 9S23
Alexandria, VA 22314

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

PM Close Combat Weapon Systems
Project Office
SFAE-MSL-CWS-J
Redstone Arsenal, AL 35898

Unit Water Pod System (Camel II)

PM Petroleum and Water Systems
SFAE-CSS-FP-P
6501 East 11 Mile Rd.
Mail Stop 111
Warren, MI 43897

Warfighter Information Network—Tactical (WIN-T) Increment 1

Project Manager, WIN-Tactical
SFAE-C3T-WIN
Building 918
Murphy Drive
Ft. Monmouth, NJ 07703

Warfighter Information Network—Tactical (WIN-T) Increment 2

Project Manager, WIN-Tactical
SFAE-C3T-WIN
Building E4510
Aberdeen Proving Ground, MD 21010

Warfighter Information Network—Tactical (WIN-T) Increment 3

Project Manager, WIN-Tactical
SFAE-C3T-WIN
Building E4510
Aberdeen Proving Ground, MD 21010

Weapons of Mass Destruction Elimination

SFAE-CBD-Guardian
5109 Leesburg Pike
Falls Church, VA 22041



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